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March 28, 2008

USEPA
75 Hawthorne Street
San Francisco, CA 94105
Attn: Linda Ketellapper, Case Developer
Mail Code SFD-7-5

Ms Ketellapper:

In regards to the "embedded" information request as discussed in the letter dated March 13, 2008 and signed by Thanne Cox, I must apologize for not responding to the original request. It was my intention to answer all questions posed to me by the EPA. I feel very confident that if the request had been included in the attachment with all the other questions, then you most assuredly would have had my response by now. Again, my apologies for the confusion.

In regards to the request, the EPA is requesting the status of all the obligations and activities related to the remediation currently on-going at the Pilot Chemical site, located in Sante Fe Springs, CA. If I am mistaken, please call me to help clarify.

Pilot Chemical is currently treating soil/groundwater on our site in compliance with the Los Angeles Regional Water Quality Control Board Remedial Action Plan dated October 2000 and revised on February 29, 2001. The site is identified by SLIC # 383.

A copy of the RAP and the most recent semi-annual groundwater monitoring progress reports has been included.

Essentially, Pilot is actively treating soil on site with a soil vapor extraction system. The site currently has five chemicals of concern to include Benzene, Toluene, Ethylbenzene, Total Xylenes and 1,2 DCA. We are also sampling for a myriad of other chemicals in order to assist us in determining what contaminants may be coming onto our site from off-site sources.

The overall approach of the active remediation has been for the removal of 1,2 DCA via the SVE system. At that time, a catalytic or thermal oxidizer would be installed in order to remediate the remaining soil. Once completed, groundwater cleanup using chemical oxidation would begin. This approach is being utilized in order to avoid the unnecessary costs of adding a scrubber to the oxidizer.

March 28, 2008

During my recent trip to the plant, meetings were held with both the LARWQCB and the Santa Fe Springs Fire Department. Both organizations were briefed on the project and Pilot reinforced its commitment to clean the site up to levels acceptable to both organizations.

If I can be of further service, please do not hesitate to call at 513-326-0625.

Regards,

Matthew J. Leary

Matthew J. Leary
Corporate EHSS Manager
Pilot Chemical Company

Revised Remedial Action Plan (SLIC NO. 383)

Pacific Edge Engineering, Inc. Project Number 0199.0019.002

**Pilot Chemical Company
11756 Burke Street
Santa Fe Springs, California**

October, 2000

Prepared for:

**Pilot Chemical Company
11756 Burke Street
Santa Fe Springs, California**

Prepared by:

**Pacific Edge Engineering, Inc.
22772 Centre Drive, Suite 230
Lake Forest, California 92630**

Craig A. Stolz, P.E.
Principal Engineer

TABLE OF CONTENTS

<u>Section</u>	<u>Page</u>
1.0 INTRODUCTION	1-1
1.1 PURPOSE	1-1
1.2 BACKGROUND INFORMATION	1-1
1.2.1 Location	1-3
1.2.2 Facility Description	1-3
1.3 GEOLOGY AND HYDROGEOLOGY	1-3
1.3.1 Regional	1-3
1.3.2 Local	1-3
1.3.3 Surface Water	1-4
1.3.4 Water Supply Wells	1-4
2.0 REMEDIAL INVESTIGATION SUMMARY	2-1
2.1 SUMMARY OF SOIL INVESTIGATIONS	2-1
2.1.1 Chemicals of Interest in Soil	2-2
2.2 SUMMARY OF GROUNDWATER INVESTIGATIONS	2-2
2.2.1 Chemicals of Interest in Groundwater	2-3
2.2.2 Groundwater Extraction and Aquifer Test	2-4
3.0 REMEDIATION OBJECTIVES	3-1
3.1 MASS REMOVAL AREAS	3-1
3.1.1 Soil	3-1
3.1.2 Groundwater	3-2
4.0 EVALUATION OF REMEDIAL ALTERNATIVES	4-1
4.1.1 Remedial Alternatives - Soil	4-1
4.1.2 Remedial Alternatives - Groundwater	4-3
4.2 DESCRIPTION OF ENGINEERING EVALUATION CRITERIA	4-6
4.2.1 Engineering Evaluation Results	4-7
4.2.2 Effectiveness and Implementability	4-7
4.2.3 Cost	4-8
5.0 SELECTED REMEDIAL ALTERNATIVE	5-1
5.1 SOIL REMEDIAL ALTERNATIVE	5-1
5.2 GROUNDWATER REMEDIAL ALTERNATIVE	5-1
5.2.1 Chemical Oxidation and Natural Attenuation Considerations	5-3
6.0 REMEDIAL ALTERNATIVE IMPLEMENTATION	6-1
6.1 SOIL REMEDIATION	6-1
6.1.1 SVE Pilot Test	6-1
6.1.2 SVE Implementation Plan	6-1
6.1.3 Reporting	6-4
6.2 GROUNDWATER REMEDIATION	6-5
6.2.1 In-Situ Chemical Oxidation Bench-Scale Test	6-5
6.2.2 In-situ Chemical Oxidation Pilot Test	6-6
6.2.3 Full Scale In-Situ Chemical Oxidation and Natural Attenuation Implementation	6-6
6.2.4 In-Situ Chemical Oxidation Reporting	6-8
6.2.5 Monitored Natural Attenuation	6-8
7.0 SCHEDULE	7-1
7.1 SOIL REMEDIATION	7-1
7.2 GROUNDWATER REMEDIATION	7-1

TABLES

Table 1	Soil Sample Results
Table 2	Average Depth to Groundwater
Table 3	Historical Groundwater Analytical Results
Table 4	Average Chemical Concentration in Groundwater
Table 5	Evaluation Summary – Remedial Alternatives for Soil
Table 6	Evaluation Summary – Remedial Alternatives for Groundwater
Table 7	Total COI Concentration – MW-1
Table 8	Total COI Concentration – MW-2
Table 9	Total COI Concentration – MW-3
Table 10	Total COI Concentration – MW-4
Table 11	Total COI Concentration – MW-5
Table 12	Total COI Concentration – MW-6
Table 13	Total COI Concentration – MW-7
Table 14	Total COI Concentration – MW-8
Table 15	Total COI Concentration – MW-9
Table 16	Total COI Concentration – MW -10
Table 17	Total COI Concentration – MW -11
Table 18	SVE Pilot Test Wells

FIGURES

Figure 1	Site Location Map
Figure 2	Site Plan
Figure 3	Boring and Well Locations
Figure 4	Cross Section in A - A'
Figure 5	Cross Section B - B'
Figure 6	Mass Removal Area – Upper 40 Feet
Figure 7	Mass Removal Area – Silt/Clay
Figure 8	Distribution of Benzene in Groundwater
Figure 9	Distribution of Xylenes in Groundwater
Figure 10	Distribution of Toluene in Groundwater
Figure 11	Distribution of Ethylbenzene in Groundwater
Figure 12	Distribution of 1,2 DCA in Groundwater
Figure 13	Target Area – Groundwater
Figure 14	Proposed SVE Well Locations – Upper 40 Feet
Figure 15	Proposed SVE Well Locations – Silt/Clay

1.0 INTRODUCTION

1.1 PURPOSE

This revised Remedial Action Plan (RAP) has been prepared by Pacific Edge Engineering, Inc. (Pacific Edge) on behalf of Pilot Chemical Company (Pilot) to identify, select, and present a remedial alternative which addresses chemicals of interest in soil and groundwater at their Santa Fe Springs, California site (Site). The lead agency for the Site is the California Regional Water Quality Control Board – Los Angeles Region (LARWQCB). Semi-annual groundwater monitoring is on going at the Site. A Site location map is provided as Figure 1.

This revised RAP was prepared using previous soil and groundwater investigation data obtained for the Site.

1.2 BACKGROUND INFORMATION

Background information regarding the Site was obtained from the following reports, all of which are contained in the LARWQCB file:

- “Soil Assessment and Preliminary Shallow Groundwater Investigation, Underground Xylene Storage Tank Cluster,” prepared by Clayton Environmental Consultants, Inc., dated September 28, 1988.
- “Groundwater Extraction Design,” prepared by Clayton Environmental Consultants, Inc., dated March 6, 1989.
- “Results of Soil Venting Feasibility Study,” prepared by Decon Environmental Services Inc., dated November 8, 1989.
- “Final Report – Additional Subsurface Soil and Groundwater Assessment,” prepared by Kleinfelder, Inc., dated July 1991.
- “Subsurface Soil Investigation at the Former Underground Storage Tank Location,” prepared by McLaren/Hart, Inc., dated October 1991.
- “Remedial Action Plan for Former Underground Storage tank Location,” prepared by McLaren/Hart, Inc., dated June 1994.
- “Former Underground Storage Tank Farm Soil and Groundwater Sampling Report,” prepared by McLaren/Hart, Inc., dated February 23, 1998.
- “Results of Semi-Annual Groundwater Monitoring Activities,” prepared by McLaren/Hart, Inc., dated January 1999.
- “Groundwater Monitoring Report, Semi-Annual,” prepared by Pacific Edge, dated April 2000.

Four (4) former underground storage tanks (USTs) were used to store ammonia and xylene. These tanks are listed below and were located at the southwestern portion of the property. A site plan showing the former tank locations is provided as Figure 2.

Tank No.	Tank Size (gallons)	Material Stored	Status
T-10	10,000	Xylene	Removed 1990
T-18	12,000	Xylene	Removed 1990
T-19	12,000	Xylene	Removed 1990
T-20	12,000	Ammonia	Removed 1990

In 1990, Pilot removed the 4 USTs. A closure report was submitted to the Los Angeles County Department of Public Works (LACDPW) in accordance with tank removal requirements. The Site was referred to the LARWQCB in a LACDPW letter dated December 3, 1990. Due to soil and groundwater contamination (total xylenes, toluene, and ethylbenzene) resulting from a UST release, the LARWQCB designated the Site as SLIC # 383.

In June 1994, McLaren/Hart, Inc. submitted a RAP to the LARWQCB. This RAP addressed contamination in the upper 35-feet of soil in the vicinity of the former USTs. The RAP proposed using soil vapor extraction (SVE) to remediate total xylenes, toluene, and ethylbenzene. On September 29, 1994, McLaren/Hart, Inc. provided additional details to the LARWQCB regarding the implementation of the proposed SVE system.

The LARWQCB notified Pilot in a letter dated September 29, 1994 that they would need to enter into an oversight agreement with the LARWQCB. On November 11, 1994, Pilot entered into the LARWQCB's agreement for voluntary cleanup and abatement activities for the Site.

On February 8, 1995, the LARWQCB approved the RAP with the following conditions:

- conduct a soil and groundwater investigation to define the extent of 1,2 dichloroethane (DCA) and trichloroethylene (TCE) at the Site;
- expand the proposed remediation to include areas where 1,2 DCA and TCE are identified during the future investigation;
- expand remediation efforts to include contaminants found below the depth of 35-feet in the clay unit and the lower sandy unit. The LARWQCB further required that the clay and lower sandy unit be addressed during groundwater remediation;
- submit a SVE monitoring and testing program prior to system startup; and
- continue on-going groundwater monitoring and sampling.

On February 7, 1996, McLaren/Hart submitted a workplan for a soil and groundwater investigation to define the extent of 1,2 DCA and TCE. This workplan was approved by the LARWQCB on June 6, 1996. Results of this investigation were presented in McLaren/Hart, Inc.'s report "Former Underground Storage Tank Farm Soil and Groundwater Sampling Report," dated February 23, 1998. Based on the findings, McLaren/Hart, Inc. provided the following conclusions:

- 1,2 DCA and TCE were not detected extensively in the areas sampled and therefore releases have not occurred in these areas;
- total xylenes, toluene, and ethylbenzene were detected in the areas sampled;
- 1,2 DCA was found in groundwater samples. This data supports groundwater data collected during previous groundwater monitoring events; and
- groundwater samples collected during the investigation for carbon tetrachloride and chloroform support previous groundwater monitoring data, which indicate an off-site source.

On March 3, 1998, the LARWQCB concurred with McLaren/Hart, Inc.'s conclusions and directed Pilot to submit a revised RAP incorporating the information from the recent investigation. In addition, the LARWQCB requested Pilot propose site specific soil cleanup levels in accordance with their "Interim Site Assessment & Cleanup Guidebook," dated May 1996.

1.2.1 Location

The Pilot Chemical Company site (Site) is located at 11756 Burke Street in Santa Fe Springs, California. The Site is located in the southwest ¼ of the southeast ¼ of the southeast ¼ of section 30 of township 2 south, range 11 west San Bernardino baseline and meridian. The Site borders Burke Street on the north, Dice Road on the east, and industrial facilities on the west and south. A residential area is located northwest of the Site.

1.2.2 Facility Description

The Site is approximately 4.3 acres in size. The Site is used to manufacture detergent for industrial purposes and utilizes aboveground tanks (and formerly USTs) as part of their operations. Aboveground tanks are located on the western portion of the Site and within the old warehouse. The aboveground storage tanks are all located within containment structures.

1.3 GEOLOGY AND HYDROGEOLOGY

1.3.1 Regional

The site lies within the Santa Fe Springs Plain area of the coastal plain of Los Angeles County, California. The Santa Fe Springs Plain is a low, slightly rolling topographic feature that has been warped by the Santa Fe Springs-Coyote Hills anticlinal system. This plain dips gently both to the northeast (toward Whittier) and to the southwest (toward the Downey Plain), with an elevation difference of 175 to 200 feet above sea level.

The major structural feature in the area is the Whittier fault zone, which is approximately 2.5 miles northeast of the site along the southern flank of the Puente Hills. This west-northwest trending fault zone has a oblique net slip estimated at 15,000 feet.

1.3.2 Local

The site is located on upper Pleistocene-aged alluvium of the Lakewood Formation. The Lakewood Formation overlies the lower Pleistocene San Pedro Formation, the Pleistocene Pico and Repetto Formations, and the Miocene Puente Formation.

The average surface elevation for the Site is approximately 152 feet above mean sea level. Soil logging at the Site has occurred to a maximum depth of 76 feet below ground surface. Generally, soil lithology consists primarily of alternating intervals of fine to medium-grained sand and silty sand and clayey silt (Kleinfelder, July 1991). A clay unit underlies the silty sand unit. This clayey unit contains sand lenses and extends from the base of the silty sand unit (35 to 40 feet) to approximately 55 feet below surface (McLaren/Hart, June 1994).

During the installation of on-site monitoring wells, the first occurrence of groundwater was encountered at approximately 55 feet below ground surface (Kleinfelder, July 1991). The static water level measured in on-site wells during 1991 ranged between 47 to 51 feet (Kleinfelder, July 1991). This rise in water level between the first occurrence and static water levels indicates that the groundwater is under hydrostatic pressure and is confined by the clayey unit. The

groundwater flow direction is toward the south-southwest with a gradient of approximately 0.0046 feet per foot (Pacific Edge, April 2000).

1.3.3 Surface Water

The San Gabriel River, the only surface water within 1-mile of the site, is approximately 1-mile west of the site (Figure 1). In this area, the river is contained within a channel having concrete walls with an open bottom.

1.3.4 Water Supply Wells

One (1) water production well has been identified within a one-mile radius of the site. This well is located behind the Santa Fe Springs Fire Station No. 2. Fire Station No. 2 is located at 8634 Dice Road, approximately 700 feet from the Site. The following information was obtained from the Water Replenishment District of Southern California and the City of Santa Fe Springs:

Well I.D.	2S-11W-30R-3S
Owner	City of Santa Fe Springs
Installation Date	July 15, 1961
Total Depth	900-feet below surface
Screened Interval	200 – 288 feet below surface 300 – 900 feet below surface
Status	Active

The approximate location of this well is shown on Figure 1.

2.0 REMEDIAL INVESTIGATION SUMMARY

This section summarizes soil and groundwater remedial investigations conducted at the Site. These investigations are documented in the following reports:

- "Soil Assessment and Preliminary Shallow Groundwater Investigation, Underground Xylene Storage Tank Cluster," prepared by Clayton Environmental Consultants, Inc., dated September 28, 1988.
- "Groundwater Extraction Design," prepared by Clayton Environmental Consultants, Inc., dated March 6, 1989.
- "Results of Soil Venting Feasibility Study," prepared by Decon Environmental Services Inc., dated November 8, 1989.
- "Final Report – Additional Subsurface Soil and Groundwater Assessment," prepared by Kleinfelder, Inc., dated July 1991.
- "Subsurface Soil Investigation at the Former Underground Storage Tank Location," prepared by McLaren/Hart, Inc., dated October 1991.
- "Remedial Action Plan for Former Underground Storage tank Location," prepared by McLaren/Hart, Inc., dated June 1994.
- "Former Underground Storage Tank Farm Soil and Groundwater Sampling Report," prepared by McLaren/Hart, Inc., dated February 23, 1998.
- "Results of Semi-Annual Groundwater Monitoring Activities," prepared by McLaren/Hart, Inc., dated January 1999.
- "Groundwater Monitoring Report, Semi-Annual," prepared by Pacific Edge, dated April 2000.

These reports found soil and groundwater hydrocarbon contamination (benzene, ethylbenzene, toluene, and xylene) at the Site. Benzene, ethylbenzene, and toluene are attributed to their presence in the xylene formulation. 1,2 dichloroethane (1,2 DCA) has been detected in some soil samples and is found in groundwater at the Site. Other chemicals have been detected in groundwater at the Site, but are considered a result of an off-site source, with the exception of methyl blue active substances (MBAS – surfactant).

The following have been identified as chemicals of interest (COI) for soil and groundwater. The COI do not include chemicals that are believed to originate from an off-site source.

- Benzene
- Ethylbenzene
- Toluene
- Total Xylenes (xylene)
- 1,2 DCA

2.1 SUMMARY OF SOIL INVESTIGATIONS

A total of 33 soil boring and geoprobe locations have been completed and 164 soil samples have been collected and analyzed during site investigations. Table 1 presents a summary of all soil sample results for chemicals detected more than once in soil. Figure 3 presents the location of all soil boring, geoprobe, hand auger, and groundwater monitor well locations.

2.1.1 Chemicals of Interest in Soil

The COI found in soil within the vicinity of the former USTs are benzene, ethylbenzene, toluene, total xylenes, and 1,2 DCA. The distribution of these chemicals is influenced by Site lithology, with the majority of contamination found in (1) the upper silty sand unit in the vicinity of the former tanks (2) the deeper zone at the sandy silt and clayey interface and (3) the clay unit itself. Based on the soil investigation data, the COI have migrated downward beneath Tank T-10 (former UST) and upon reaching the less permeable clay unit has spread laterally away from the former tank area. A summary of the number of samples with detects and the concentration range is provided below for the COI.

COI	Number Of Samples Analyzed	Number Of Detects	Concentration Range (mg/kg)
Benzene	161	6	0.007 – 0.3
Ethylbenzene	161	91	0.0071 – 3,610
Toluene	161	101	0.0064 – 10,000
Xylene	161	102	0.013 – 15,200
1,2 DCA	70	8	0.033 – 40.39

Other contaminants that have been detected once in soil at the Site include 1,1 DCA (soil sample GP-2) at a concentration of 0.055 mg/kg; chloroform (soil sample GP-5) at a concentration of 3.2 mg/kg; and 2-butanone (soil sample GP-8) at a concentration of 0.026 mg/kg.

Figures 4 and 5 are cross sections that illustrate the subsurface lithology and distribution of COIs in soil. The cross sections are from McLaren/Hart's investigation report, dated October 1991.

2.2 SUMMARY OF GROUNDWATER INVESTIGATIONS

A total of 11 groundwater monitoring wells are located at the Site. Clayton Environmental Consultants, Inc. installed groundwater wells MW-1, MW-2 and MW-3 in June 1988. In December 1988, Clayton Environmental installed extraction well EW-1 (now designated as monitoring well MW-4). This well was installed in order to conduct a groundwater extraction and aquifer test. In April 1991, Kleinfelder, Inc. installed monitoring wells MW-5 through MW-11. Well construction details are provided below. Well locations are shown on Figure 3.

Well I.D.	Diameter/Material	Total Depth (ft)	Screened Interval (ft)
MW-1	2"/PVC	70	50 - 70
MW-2	2"/PVC	70	50 - 70
MW-3	2"/PVC	70	50 - 70
MW-4	5"/PVC	75	45 - 75
MW-5	4"/PVC	73	55 - 73
MW-6	4"/PVC	73	52 - 73
MW-7	4"/PVC	73	53 - 73
MW-8	4"/PVC	73	53 - 73
MW-9	4"/PVC	74	54 - 74
MW-10	4"/PVC	73	53 - 73
MW-11	4"/PVC	72	52 - 72

Historically, the groundwater flow direction at the Site is to the southwest. Monitoring well MW-5 and MW-6 are upgradient wells. Monitoring well MW-9 is the most downgradient well and is located at the southwest end of the property.

A total of 17 groundwater sampling events have occurred from April 1991 to April 2000. Semi-annual groundwater monitoring is on going at the Site, with the next scheduled event in October 2000. The semi-annual sampling event consists of sampling and measuring the water elevation of the eleven on-site wells with the purpose of updating water quality data and verifying the direction of groundwater flow at the facility.

Table 2 graphically presents the average static depth to groundwater measured in monitoring wells at the Site from July 1988 to April 2000. As shown on Table 2, the average depth to water has ranged from approximately 33 feet to 52 feet below ground surface (bgs). The current average depth to water measured in monitoring wells is approximately 46 feet bgs. During monitor well installation the first occurrence of groundwater was encountered at approximately 55 feet bgs.

Groundwater samples collected from the Site have been analyzed for the following compounds:

- Halogenated Volatile Organic Compounds (HVOCs).
- Volatile Organic Compounds (VOCs)
- Methyl Blue Active Substance (MBAS) - Surfactants
- pH
- Total Petroleum Hydrocarbons – diesel range (TPHd).

Table 3 presents the analytical results for groundwater sampling conducted at the Site through the April 2000 semi-annual event. The chemicals found in groundwater include total xylenes, ethylbenzene, toluene, benzene, MBAS, 1,1 DCA, 1,1 DCE, PCE, carbon tetrachloride, chloroform, 1,2 DCA, and TCE. Of these chemicals, benzene, toluene, ethylbenzene, total xylenes, 1,2 DCA, and MBAS are believed to originate from the site.

2.2.1 Chemicals of Interest in Groundwater

As shown on Table 3, the following groundwater COI are those chemicals that exceed their respective primary MCL in groundwater at the Site:

- Benzene
- Ethylbenzene
- Toluene
- Xylene
- 1,2 DCA

Additional chemicals have been detected in groundwater at the Site. These chemicals have not been included on the list of COI for the following reasons.

MBAS/Surfactants

A tracer substance, Methyl Blue Active Substances (MBAS), has been generally detected in all wells at the Site. Surfactants, which are indicated by the presence of MBAS, do not have a

primary MCL. The secondary MCL for surfactants, which addresses the consumer acceptance limit for taste, odor, or appearance of drinking water, is 0.5 mg/L.

1,1 DCA

1,1 DCA has been consistently detected in monitoring well MW-9. It should be noted that MW-9 is located at the property boundary near the neighboring facility. This facility stores numerous drums of material at the property boundary and is believed to handle large quantities of chemicals. 1,1 DCA has not been detected in any other monitoring well, including on-site upgradient wells, and has only been detected in 1 soil sample at a very low concentration, suggesting an off-site source.

1,1 DCE

1,1 DCE has also been consistently detected in monitoring well MW-9. 1,1 DCE has not been detected in any other monitoring well, including on-site upgradient wells, or any soil sample at the Site, suggesting an off-site source.

PCE

PCE has been periodically detected in upgradient wells MW-5 and MW-6 and on-site wells MW-3, 4, 7, 8, 9 and 11. A high concentration of PCE occurs in MW-5, the most upgradient well, suggesting an off-site source.

Carbon Tetrachloride

Carbon tetrachloride has been consistently detected in upgradient wells MW-5 and MW-6. Carbon tetrachloride has been periodically detected in wells MW-3, 4, 7, 8, 9, and 11 at much lower concentrations, suggesting an off-site source.

Chloroform

Chloroform has been consistently detected in upgradient wells MW-5 and MW-6. Chloroform has been periodically detected in wells MW-3, 4, 7, 8, 9, 10, and 11 at much lower concentrations, suggesting an off-site source.

TCE

TCE has been detected in all monitoring wells with the exception of MW-1 and MW-2. The average detected TCE concentration is similar for upgradient wells (MW-5 and MW-6) and wells MW-3, MW-4, MW-7, MW-8, MW-9, MW-10, and MW-11. The presence of TCE in upgradient wells and at similar concentrations found in other wells suggests an off-site source.

2.2.2 Groundwater Extraction and Aquifer Test

In August 1988 Clayton Environmental installed groundwater extraction well EW-1 (now designated MW-4). This well was installed for the purpose of conducting an extraction test for a extraction wellfield design.

A variable rate step drawdown test was performed on the extraction well at discharge rates of 3.07, 6.10, and 11.25 gallons per minute (gpm). Monitoring wells MW-1, MW-2, and MW-3 were used as drawdown observation wells during the extraction test. The variable rate test indicated that the extraction well may be capable of a long term pumping rate of 30 gpm, however this was estimated based on transient state test data.

Additionally, Clayton Environmental concluded that the estimated radius of influence of the extraction well during transient state conditions was 280 feet. Therefore, a maximum well spacing should be 420 feet.

Clayton Environmental did not perform zone of capture modeling.

3.0 REMEDIATION OBJECTIVES

Remediation efforts will focus on mass removal of the COI in soil and groundwater.

The soil COI's for the Site include benzene, ethylbenzene, toluene, xylene, and 1,2 DCA.

3.1 MASS REMOVAL AREAS

Areas identified for mass removal of the COI in soil include the upper silty sand unit from 5 feet bgs to 35 to 40 feet bgs and the less permeable unit (silty clay and clay) from approximately 35 to 40 feet to 50 feet bgs.

A discussion of the mass removal area for groundwater is provided as Section 3.1.2

3.1.1 Soil

The mass removal area for soil was identified by calculating preliminary site-specific cleanup goals using the RWQCB's "Interim Site Assessment & Cleanup Guidebook, May 1996" (guidance document). The preliminary cleanup goals for the COI were calculated based on the following site characteristics:

- Lithology
- Distance above groundwater

Site lithology, as identified in cross section by McLaren/Hart in their October 1991 report, is illustrated on Figures 4 and 5. The first occurrence of groundwater under hydrostatic conditions was reported to be approximately 55-feet bgs by Kleinfelder, Inc.

BTEX cleanup goals were calculated using Table 4-1 of the May 1996 guidance document in the following manner:

1. Table 4-1 BTEX values were calculated/interpolated for each distance above groundwater using a Site lithology mix of 45% sand, 35% silt, and 20% clay.
2. For distances greater than 20-feet above groundwater, BTEX cleanup goals were calculated/interpolated using the values calculated for 40-feet above groundwater and the next appropriate distance above groundwater.
3. For distances less than 20-feet above groundwater, BTEX cleanup goals were calculated/interpolated using the 40-foot values and MCL's.

The 1,2 DCA cleanup goals were calculated using Table 5-1 of the May 1996 guidance document in the following manner:

1. Table 5-1 attenuation factors were calculated/interpolated using a Site lithology mix of 45% sand, 35% silt, and 20% clay.
2. Multiplying the calculated/interpolated attenuation factor by the MCL for 1,2 DCA (0.5 ppb).

Therefore, the following cleanup goals for BTEX and 1,2 DCA were determined based on depth to groundwater and Site lithology.

Distance Above Groundwater (ft)	Depth Below Surface (ft)	Benzene mcl=0.001 ppm	Toluene mcl=0.15 ppm	Ethylbenzene mcl=0.7 ppm	Xylenes mcl=1.75 ppm	1,2 DCA mcl=0.0005 ppm
		C (ppm)	C (ppm)	C (ppm)	C (ppm)	C (ppm)
54	1	0.07	3.67	14.25	38.95	0.009
50	5	0.06	3.33	12.91	35.25	0.007
45	10	0.05	2.90	11.22	30.62	0.006
35	20	0.04	2.04	7.86	21.38	0.004
25	30	0.025	1.18	4.50	12.12	0.003
15	40	0.018	1.02	4.02	10.84	0.002
10	45	0.012	0.73	2.91	7.81	0.001
5	50	0.007	0.44	1.81	4.78	0.0007

These site-specific cleanup goals were used to define the vertical and lateral extent of COI mass removal in soil. Figures 6 and 7 present the lateral extent of the COI in soil exceeding the cleanup goals.

3.1.2 Groundwater

Table 4 presents the average concentration in groundwater for all chemicals detected in groundwater for the period January 1997 through April 2000. The average concentrations presented in Table 4 were used to plot the distribution of benzene, total xylenes, toluene, ethylbenzene, and 1,2 DCA (Figures 8 through 12). The area for mass removal of the COI in groundwater is illustrated in Figure 13.

Benzene

As shown on Figure 8, the highest average concentration of benzene is located near the former UST area at well MW-1.

Total Xylenes

As shown on Figure 9, the highest average concentration of total xylenes is located near the former UST area at well MW-1. Off-site migration of total xylenes exceeding the MCL is indicated by the average concentration for well MW-8.

Toluene

As shown on Figure 10, the highest average concentration of toluene is located near the former UST area at well MW-1 and well MW-2. The distribution of toluene exceeding its MCL concentration of 150 ug/L is similar to that of xylene. Off-site migration of toluene exceeding the MCL is indicated by the average concentration for well MW-8.

Ethylbenzene

As shown on Figure 11, the highest average concentration of ethylbenzene is located near the former tank area at well MW-1. The distribution of ethylbenzene exceeding its MCL concentration of 700 ug/L is similar to xylene and toluene.

1,2 DCA

The highest average concentration of 1,2 DCA is located in MW-10, northeast of the former tank area. Upgradient wells MW-5 and MW-6 have detected 1,2 DCA periodically.

1,2 DCA has been detected in only 8 soil samples at concentrations ranging from 0.033 to 40.39 mg/kg. The highest concentration of 40.39 mg/kg was detected in boring B6 at a depth of 2 feet bgs. At the depth of 5 feet bgs at boring B6 the concentration of 1,2 DCA decreases to 1.14 mg/kg. Because 1,2 DCA has not been found extensively in Site soils a source upgradient to the northeast of MW-10 is indicated.

5.0 SELECTED REMEDIAL ALTERNATIVE

The remedial alternative selected for the Site include:

- Soil - In-situ soil vapor extraction
- Groundwater In-situ Chemical Oxidation followed by Monitored Natural Attenuation

A discussion regarding the justification for selection of these remedial alternatives is presented below.

5.1 SOIL REMEDIAL ALTERNATIVE

All ex-situ remedial alternatives require excavation of the contaminated soil. Excavation is a proven technology that could be used to remediate contaminated soil. In order to excavate the target area, shoring and underpinning would be required to protect the aboveground tanks and process equipment. In some instances, the tanks and equipment would have to be removed to facilitate remedial activities. This would cease operations at the facility during excavation soil remediation. In addition, vapor emission controls would likely be needed to provide a safe working environment and to control exposure of vapors to the employees, neighboring sites, and to the public. These factors alone make excavation, i.e. ex-situ remedial alternatives, a costly and difficult alternative to implement.

Where soil is permeable to moderately permeable in-situ SVE is often the most cost effective method for remediation of the COI. SVE is a proven technology and has gained widespread acceptance in the engineering and regulatory communities. SVE may be the most cost effective technology where there is a relatively large volume of impacted soil, the impacted soil is too deep to be easily excavated, and access is limited by aboveground structures.

Based on the evaluation of remedial alternatives and the above considerations, in-situ SVE is proposed for soil remediation at the Site. The effectiveness of SVE in the less permeable silts and clay may be limited. However, SVE has been proven to remove that portion of the VOCs in low permeable soil that otherwise would become mobile and migrate.

The SVE emission control systems that will be considered for the Site are a thermal/catalytic oxidizer and vapor phase activated carbon.

5.2 GROUNDWATER REMEDIAL ALTERNATIVE

All ex-situ remedial alternatives require extraction of groundwater, i.e. pump and treat. Pump and treat is a proven technology that could be used for mass removal of chemicals. Pump and treat at the surface is considered the standard groundwater remediation alternative and is known to be expensive and takes years to complete.

A second disadvantage of groundwater extraction is that contaminants remain within the drawdown zone caused by active pumping. Contamination in this zone could continue to be a source of groundwater contamination once pumping has stopped and the water table elevation rises. Additionally, the potential for groundwater extraction to draw and/or accelerate the migration of off-site upgradient contaminants onto the Site must be considered.

The most effective surface treatment technology for the COI in the extracted groundwater is an air stripper. Because surfactants would be present in extracted groundwater, pretreatment to remove these foaming agents prior to primary treatment may be necessary. Chemical laden air discharged from the stripper could be treated using vapor phase activated carbon or combusted in a thermal oxidizer. The most cost-effective approach would be to treat the air stripper emissions using the SVE thermal/catalytic oxidizer. This would require significantly increasing the thermal oxidizer and associated scrubber's capacity. The complexity of pump and treat at the surface at the Site is another disadvantage of ex-situ alternatives. These factors make pump and treat (ex-situ alternatives) a costly and difficult alternative to implement.

In-situ chemical oxidation is a demonstrated alternative to conventional ex-situ (pump and treat) techniques. In-situ chemical oxidation provides the following advantages:

- can provide rapid and more complete contaminant removal/destruction compared to pump and treat;
- the contaminants are completely oxidized into carbon dioxide or converted into innocuous compounds commonly found in nature;
- the chemistry of the process is well known and has been widely used in wastewater treatment applications;
- the degree of treatment can be regulated and combined with other processes/alternatives;
- is particularly useful for treatment of source areas to reduce the mass of contaminants;
- would limit disruptions to on-site operations;
- can eliminate long-term operation and maintenance costs; and
- is more cost effective than pump and treat because the time of remediation can be significantly reduced.

Natural attenuation is also a demonstrated alternative to conventional ex-situ (pump and treat) techniques. One of the key factors in assessing the applicability of remediation by natural attenuation is to evaluate the plume status. Based on monitoring groundwater chemical concentrations over time the status of a plume can be classified as either shrinking, stable, or expanding. The plume classifications are defined as follows:

1. Shrinking Plume – configuration where the solute plume margin is receding back toward the source area over time and the concentrations at points within the plume are decreasing over time.
2. Stable Plume – configuration where the solute plume margin is stationary over time and concentrations at points within the plume are relatively uniform over time or may decrease over time. A stable plume is evidence of natural attenuation. The source of the COI may persist in soils at the water table, but the natural attenuation rate approximately equals the mass loading rate for COI's to groundwater.
3. Expanding Plume – configuration where the solute plume margin is continuing to move outward or down gradient from the source area.

Tables 7 through 17 graphically illustrate the total COI concentration for each well at the Site from the period of September 1995 through April 2000. As shown, the total COI concentration at each well has been stable or decreasing, therefore, the plume is classified as a "stable plume or "shrinking plume". Based on the plume evaluation and the individual well COI concentration plot (Tables 7 through 17), it appears that natural attenuation is occurring at the Site to some degree.

Based on the evaluation of remedial alternatives and the above considerations, in-situ chemical oxidation for mass removal near the source followed by Site wide monitored natural attenuation is proposed for groundwater remediation. In-situ chemical oxidation will reduce the mobility, toxicity and volume of the COI within the target area. Semi-annual groundwater monitoring will be implemented to evaluate the natural attenuation processes, plume stability, and document the rate of residual contamination reduction within the groundwater plume.

5.2.1 Chemical Oxidation and Natural Attenuation Considerations

The effects of in-situ chemical oxidation on the natural attenuation process in an aquifer system were considered during evaluation of this remedial alternative. A discussion regarding these potential effects is provided below, and is based on the experience of the specific in-situ chemical oxidation process/vendor (hydrogen peroxide) proposed for use at the Site.

Effects on Existing Microbial Populations

During field application, hydroxyl radicals are formed and travel at high velocities through the saturated soil matrix from an application well. The hydroxyl radicals are strong oxidizers and will oxidize bacterial cell structure if contact is made between the bacteria and the oxidizer, resulting in a decrease, but not elimination, of the bacterial population within the treatment area. Once background conditions are restored (estimated at one to two months following treatment application), bacterial populations can return to the levels present prior to the application of the treatment reagents.

Conversion from Anaerobic to Aerobic State

The majority of the hydrogen peroxide that is applied to the subsurface during the treatment application is converted to hydroxyl radical via a Fenton Reaction pathway. Some volume will decompose to water and oxygen. The additional oxygen added to the aquifer causes a temporary increase in dissolved oxygen levels within the treatment area which in turn would, by definition, make an anaerobic aquifer temporarily more aerobic. This behavior has been monitored during and after field applications by measuring dissolved oxygen (DO) and oxidation-reduction potential (ORP) in monitoring wells located within and just outside the treatment area. Field applications show that DO can rise between 0 and 2% over background levels during the application and returns to background levels within a few days. ORP has been found to become more oxidative than background during the application and, within two weeks, becomes slightly more reductive than background.

Effects of pH and Iron on Biological Activity

The process requires the addition of acetic acid to reduce the pH in water immediately surrounding the application well (5 to 10 feet from the well) so that peroxide will react with the dissolved ferrous iron to produce hydroxyl radical. Depressed pH values dissipate to background within two to ten weeks, depending on the groundwater flow rate. The buffering capacity will not be significantly changed other than a slight increase in buffering due to the addition of iron salts. Based on experience, the additional quantity of iron that is added to the aquifer surrounding the application well is relatively insignificant and does not cause any increase in bacterial levels or cause a decrease in aquifer matrix permeability.

Other Parameters Potentially Affected

Any chemical, organic or inorganic, can be affected, to some degree, if amenable to oxidation. Therefore, during the period of the reagent application, total organic carbon and methane will be oxidized to some degree. Sulfides, chlorides, nitrogen, nitrates, and phosphorus will be relatively unaffected. Some dissolved or suspended metals can be oxidized. The oxidation process generally lasts for just a few hours past application of the hydrogen peroxide and has no long-term effects on natural attenuation other than reducing contaminant concentrations to less toxic levels which may be more amenable for bacterial growth and respiration.

4.0 EVALUATION OF REMEDIAL ALTERNATIVES

This section presents a summary of the evaluation that was conducted to assess the effectiveness, implementability, and cost associated with remedial alternatives. The objective of this evaluation was to assess remedial alternatives and identify an alternative that will be effective in mass removal of COI's at the Site.

Potentially applicable remedial alternatives were selected based on the following parameters:

- Media to be remediated;
- Proven to be effective; and
- Ability to meet the remedial objective, i.e. hot spot mass removal to eliminate a significant adverse effect on groundwater quality.

The remedial alternatives for soil and groundwater that were assessed during this evaluation are described below.

4.1.1 Remedial Alternatives - Soil

The COI's detected in soil at the Site include:

- Benzene
- Ethylbenzene
- Toluene
- Xylene
- 1,2 DCA

Remedial alternatives that are known to have been successfully implemented or that have the potential to remediate the COI in soil include the following:

- In-Situ Remedial Alternatives
 - Soil vapor extraction
 - Subsurface bioventing
 - Chemical oxidation
- Ex-Situ Remedial Alternatives
 - On-site soil vapor extraction
 - On-site low temperature thermal desorption
 - Off-site land farming
 - Off-site recycling
 - Off-site low temperature thermal desorption
 - Off-site disposal

In-Situ Soil Vapor Extraction

Soil vapor extraction (SVE) involves the use of induced vacuum to strip VOCs from unsaturated soils. System components consist of extraction wells or piping, vacuum pumps, injection or passive inlet wells and a vapor treatment system. During operation, a vacuum is applied, causing a pressure gradient in the surrounding soils and removal of vapors. This induces vapor flow through the unsaturated soil. Contaminants volatilize from the soil matrix into the vapor phase

and are removed through the pore spaces in the soil to the vapor extraction wells or extraction piping. Injection or passive inlet wells may be installed to aid the flow of fresh air through the soil. The vapor from the extraction wells may be treated using an appropriate vapor treatment system.

The SVE process is effective for removing volatile compounds from soils with high permeability, such as sand. Under some conditions, this technology can be used in soils with low permeability, such as clay, with a higher vacuum for a longer period of time.

In-Situ Subsurface Bioventing

In-situ bioventing is a combination of SVE and bioremediation. Bioremediation is a process by which the respiration of indigenous microbial populations is enhanced to degrade compounds in soil under aerobic conditions. Moisture, nutrients (nitrogen and phosphorus), and oxygen are injected into the subsurface to enhance the natural biodegradation process. The in-situ subsurface bioremediation process can also include above ground treatment or conditioning of the water and nutrients to be injected with oxidizers such as hydrogen peroxide. SVE is used to remove VOCs as described previously.

In-Situ Chemical Oxidation

In-situ chemical oxidation utilizes the injection of hydrogen peroxide and a catalyst into soil and the capillary fringe through well points. Within the subsurface, the formation of a hydroxyl free radical via Fenton's reaction chemistry occurs and degrades organic compounds to carbon dioxide and water. The addition of hydrogen peroxide and a catalyst to soil and the capillary fringe usually requires several applications to be effective. This technology can be used in conjunction with SVE systems and mass removal by limiting long-term operation and maintenance programs. The target compounds for chemical oxidation includes VOCs.

Ex-Situ, On-Site Soil Vapor Extraction

As previously described, SVE involves the use of an induced vacuum to strip volatile organic compounds from unsaturated soil. Ex-situ, on-site SVE involves applying an induced vacuum to a polyethylene enveloped soil stockpile to volatilize the VOCs in soil. The basic system components include extraction manifolds and vacuum pumps to remove vapors. The vapors extracted from the soil stockpile may be treated using an appropriate vapor treatment system.

In addition, moisture, nutrients, and oxygen may be injected into the soil stockpile to enhance microbial activity within the soil. Additions to the basic SVE system would include injection piping or manifolds to supply moisture, nutrients, and oxygen, i.e. bioventing.

Ex-Situ, On-Site Low Temperature Thermal Desorption

Excavated soil can be treated using on-site low temperature thermal desorption (LTTD) which is a process where excavated contaminated soil is heated to volatilize water and chemical compounds having boiling points of less than 800 °F. Typically, a continuous feed system (e.g. rotary kiln) with direct or indirect fire is used. Direct fire uses a flame in the air space and indirect fire utilizes conduits to heat the soil. Volatilized chemicals in the vapor exhaust stream can be recondensed for recycling, reuse, or disposal or destroyed using an afterburner.

LTTD is effective for removing volatile compounds from soil with high permeability. Under some conditions, this technology can be used in soils with low permeability, such as clay, although these soils may require longer treatment periods.

Off-Site Land Farming

Excavated soil would be transported to an off-site treatment facility for land farming, which is a process by which the respiration of indigenous microbial populations is enhanced to degrade VOCs in soil under aerobic conditions. Soil is placed in treatment cells in lifts of a specified depth. Moisture and nutrients are applied to the soil surface. The soil is then tilled to mix the moisture and nutrients and aerate the soil to add oxygen.

Off-Site Recycling

Petroleum hydrocarbon-impacted soil can be excavated and transported to an appropriate recycling facility that performs the asphalt mixing process. The asphalt mixing process involves using the petroleum-impacted soil as a raw material for the production of asphalt road base. The process of producing cold mix asphalt involves blending the petroleum hydrocarbon-impacted soil with emulsified asphalt to produce a commercial grade product.

Off-Site Low temperature Thermal Desorption

Excavated soils would be transported to an off-site facility that uses on-site LTTD as a remediation method. The LTTD process that would be used at the off-site facility is the same as the process described under ex-situ, on-site LTTD process.

Off-Site Disposal

Off-site disposal involves excavating the impacted soil from the site and transporting it to an appropriate facility for disposal. Soil containing chemical constituents with concentrations greater than the applicable regulatory limits for hazardous waste would be disposed of at a permitted Class I or Class II hazardous waste facility. In addition, prior to landfilling, soil containing certain chemicals may require additional treatment to meet Land Ban Treatment Standards. Soil containing chemical constituents at concentrations less than these regulatory limits would be disposed at other appropriate off-site facilities.

4.1.2 Remedial Alternatives - Groundwater

The COI's detected in groundwater at the Site include:

- Benzene
- Ethylbenzene
- Toluene
- Xylene
- 1,2 DCA

Other chemicals found in groundwater at the Site excluded from the COI (see Section 2.3.1) include:

- Surfactants;
- 1,1 DCA;
- 1,1 DCE;
- PCE;
- Carbon Tetrachloride;
- Chloroform; and
- TCE

The presence of these chemicals may impact the treatment process and/or discharge of groundwater. Therefore, groundwater remedial alternatives must consider all chemicals detected in groundwater at the Site.

Remedial alternatives that are known to have been successfully implemented or that have the potential to remediate the COI's and other contaminants in groundwater include the following:

- In-Situ Remedial Alternatives
 - Air Sparging
 - Chemical Oxidation
 - Monitored Natural Attenuation
- Ex-Situ Remedial Alternatives
 - Dual Phase Extraction
 - Groundwater Extraction With Liquid-Phase Carbon Adsorption Treatment
 - Groundwater Extraction With Air Stripping
 - Groundwater Extraction With Ultraviolet (UV) Oxidation Treatment

In-Situ Air Sparging

The air sparging process uses clean air injected under pressure through sparge points (wells) below the groundwater surface. Resulting air bubbles migrate laterally and vertically through the contaminated groundwater. Volatile compounds in the saturated zone and capillary fringe that are exposed to this injected air volatilize from the aqueous phase into the vapor phase and migrate upward to the unsaturated zone, where the volatilized organic compounds are then captured using a SVE system. The injected air will also increase the oxygen content of the groundwater and subsurface soil, which would facilitate increased microbiological activity therefore promoting in-situ biodegradation. The vapor collected by the SVE system would be treated using an appropriate vapor treatment system.

Air sparging is effective for concentrated volatile compounds at the surface of the water table, also known as a smear zone. This remedial alternative is also best suited for permeable saturated soils. The target compounds for air sparging include VOCs.

In-Situ Chemical Oxidation

In-situ chemical oxidation is a more aggressive remediation alternative than in-situ air sparging or "pump and treat" and can result in faster cleanup. In-situ chemical oxidation is based on the delivery of chemical oxidants to contaminated groundwater so that the contaminants are either completely oxidized into carbon dioxide or converted into innocuous compounds commonly found in nature. The oxidants applied in this process are typically hydrogen peroxide (H₂O₂), potassium permanganate (KmnO₄), or ozone. The most common applications thus far have been

based on Fenton's Reagent whereby hydrogen peroxide is applied with an iron catalyst creating a hydroxyl free radical. Residual hydrogen peroxide decomposes into water and oxygen in the subsurface and any remaining iron precipitates out. Typically, several treatment applications are needed. The volume and chemical composition of treatment applications are based on the contaminant levels, aquifer characteristics, and pre-application benchscale test results. The oxidant can be injected through a well or injector head directly into the subsurface, mixed with a catalyst and injected, or combined with an extract from the site and then injected and recirculated.

The target compounds for in-situ chemical oxidation include chlorinated solvents, polyaromatic hydrocarbons, and petroleum products.

Monitored Natural Attenuation

Monitored natural attenuation is a remedial approach that takes advantage of natural physical, chemical, or biological degradation processes while managing residual risk COI's above regulatory action levels. As part of a monitored attenuation approach, a groundwater monitoring program is implemented to:

- Assure that human health and/or ecological risks continue to be managed at the potential exposure pathways,
- document that the groundwater plume is shrinking or is stable over time, and
- document the rate of mass reduction within the groundwater plume.

Natural attenuation is a reduction in mass or concentration of a compound in groundwater over time or distance from the source of chemicals of concern due to naturally occurring physical, chemical, and biological processes, such as biodegradation, dispersion, dilution, sorption, and volatilization.

Natural attenuation makes use of natural processes to contain or slow the spread of contamination and reduce the concentration of contaminants. The processes contributing to natural attenuation are typically occurring at all contaminant sites, but at varying rates and degrees of effectiveness.

Ex-Situ Dual Phase Extraction

The dual phase extraction process uses a high vacuum system to simultaneously remove liquid and vapor from the saturated zone and capillary fringe. The screen of the vacuum extraction well is installed within the impacted unsaturated zone and below the water table surface. By applying the vacuum to the extraction well, the volatile chemical constituents in the unsaturated soil are volatilized and extracted. In addition, the impacted groundwater becomes entrained in the extracted vapor stream and is removed. A stinger and submersible pumps are often utilized to aid in groundwater recovery. The extracted vapor and groundwater are separated in an aboveground system and treated. An appropriate control technology for extracted vapors would include activated carbon or a thermal oxidizer. Extracted groundwater would be treated using activated carbon, air stripping, or UV oxidation.

Dual phase extraction is effective when used at sites that have a low yielding aquifer. The target chemicals for dual phase extraction include VOCs.

Groundwater Extraction with Liquid-Phase Carbon Adsorption Treatment

Groundwater is extracted from the subsurface using an extraction well network located within the impacted area. The groundwater that is extracted is then pumped through a series of vessels containing activated carbon. Dissolved organic compounds are adsorbed onto the activated carbon and removed from the extracted groundwater stream.

The activated carbon used to treat the groundwater requires periodic replacement or regeneration to be effective. The target chemicals for a groundwater treatment system that uses activated carbon includes VOCs.

Groundwater Extraction with Air Stripping

Groundwater is extracted from the subsurface using an extraction well network located within the impacted area. The groundwater that is extracted is then pumped through a stripping unit where groundwater flows over packed column to increase its surface area while being aerated by ambient air. Aeration methods that have been successfully used include packed towers, low-profile shallow tray aeration, diffused aeration, and spray aeration. The air stream exiting the air stripper unit will contain volatilized chemical compounds. Depending on the concentration of the chemicals in the air stream, an emission control technology may be required. Common control technologies include activated carbon and thermal oxidizers. Air stripping is used to remove VOCs from the groundwater.

Groundwater Extraction with UV Oxidation

Groundwater is extracted from the subsurface using an extraction well network located within the impacted area. The groundwater that is extracted is then pumped through a UV oxidation treatment system. UV oxidation is an advanced oxidation process that uses UV light in conjunction with ozone or hydrogen peroxide to enhance the oxidation of organic compounds in the extracted groundwater. The target chemicals for a groundwater treatment system that uses UV oxidation include VOCs.

4.2 DESCRIPTION OF ENGINEERING EVALUATION CRITERIA

During the evaluation process, the remedial alternatives were assessed with respect to effectiveness, implementability, and cost. A description of the engineering evaluation criteria and the basis for assessing each remedial alternative is presented below.

Effectiveness

The effectiveness of each remedial alternative was evaluated based on the following criteria:

- Performance and reliability in handling/treating the chemical constituents and physical conditions as related to the Site;
- Impact on human health and the environment during alternative construction and implementation. The processes were evaluated to assess potential short-term and long-term impacts to on-site and off-site human receptors and the environment. Short-term impacts refer to impacts that may occur during the construction and remediation implementation period, and long-term impacts refer to impacts that may occur after the remediation has been completed; and

- Ability to meet the remedial objective, i.e. mass removal to eliminate a significant adverse effect on groundwater quality.

Implementability

The implementability of each remedial alternative was evaluated based on the following criteria:

- Physical implementability, which is a measure of each remedial alternative with respect to space limitations, equipment availability, utility requirements, and the effort to mobilize, operate, maintain, monitor, and demobilize the proposed remediation process; and
- Institutional implementability, which is a measure of each remedial alternative with respect to applicable federal, state of California, and local regulations and permitting requirements.

Cost

The cost of each remedial alternative was assessed based on the fixed or capital cost for construction and ongoing operation and maintenance (O&M) costs. Each remedial alternative was compared to each other and evaluated as having a relative high, medium, or low cost.

The capital cost for construction includes remedial alternative design, engineering and pilot testing, and procurement and installation of equipment. The operation and maintenance costs are those annual costs necessary to operate and maintain the remedial alternative.

4.2.1 Engineering Evaluation Results

Based on the previously described evaluation criteria, each remedial alternative was assessed to measure its capability with respect to mitigating the COI in soil and groundwater and the costs associated with implementing each remedial alternative. A summary of the capability of each remedial alternative to achieve the goal of hot spot mass removal under the physical conditions that exist at the Site is presented in Subsection 4.2.2 - Effectiveness and Implementability. A discussion of the costs associated with implementing each remedial alternative is presented in Subsection 4.2.3 - Cost.

4.2.2 Effectiveness and Implementability

The remedial alternatives for soil and groundwater were evaluated according to the criteria for effectiveness and implementability. A summary of the evaluation results for effectiveness and implementability are presented as Tables 5 and 6.

4.2.3 Cost

The relative cost evaluation for the soil remedial alternatives is:

Remedial Alternative	Capital Cost	Annual O&M Cost	Capital and O&M Cost
In-Situ SVE	Low	Low	Low
In-Situ Bioventing	Medium	Medium	Medium
Ex-Situ On-Site SVE	High	Medium	High
Ex-Situ On-Site LTDD	High	Low	High
Off-Site Landfarming	High	Low	High
Off-Site Recycling	High	Low	High
Off-Site LTDD	High	Low	High
Off-Site Disposal	High	Low	High

The relative cost evaluation for the groundwater remedial alternatives is:

Remedial Alternative	Capital Cost	Annual O&M Cost	Capital and O&M Cost
Air Sparging	Medium	Medium	Medium
Chemical Oxidation	Medium	Low	Low
Natural Attenuation	Low	Low	Low
Dual Phase Extraction	Medium	Medium	Medium
Groundwater Extraction with Liquid-Phase Carbon Adsorption	High	High	High
Groundwater Extraction with Air Stripping	High	Medium	Medium
Groundwater extraction with UV Oxidation	High	High	High

6.0 REMEDIAL ALTERNATIVE IMPLEMENTATION

Implementation of the proposed soil and groundwater remedial alternative is described in the following sections.

6.1 SOIL REMEDIATION

6.1.1 SVE Pilot Test

An SVE pilot test will be performed to verify/develop system design criteria. The objectives of the SVE pilot test will be to (1) determine the effective radius of influence an optimum extraction rates for the upper and lower target soil units; (2) select the appropriate blower/vacuum pump size for the SVE system; and (3) develop treatment design criteria.

The air permeability of the upper and lower soil units will be evaluated by performing two separate tests. Table 18 presents the proposed extraction and observation wells for each test and the screened interval of the extraction and observation wells. During each test vacuum measurements will be made in at least two observation wells within each soil unit.

A high vacuum blower with a maximum capability of approximately 20 to 25 inches of mercury will be used to perform the pilot tests. Each test will be conducted for approximately two to four hours. Vacuum will be measured at the well and in observation wells located within the soil unit being tested. Vacuum measurements will be made at approximately one-minute intervals for the first 10 minutes and at approximately 10-minute intervals thereafter, using a differential pressure gauge. Total flow and temperature at the extraction well will be monitored at approximately 10-minute intervals.

Vapor samples will be collected from the extraction wells in Tedlar bags at the beginning of the test, after extraction for one hour, and immediately before the end of the test. Concentrations of total VOCs will also be measured at these times in the extracted soil vapor using a PID and/or FID organic vapor meter. Tedlar bag samples will be sent to a certified laboratory under chain-of-custody documentation for analysis of halogenated and aromatic compounds using EPA Methods 8010/8020. This information will be used to evaluate and estimate the total mass of contaminants to be removed so that a cost effective vapor control system can be selected (thermal/catalytic oxidizer or vapor phase carbon).

SVE System Design

At the completion of the SVE pilot tests, the data will be analyzed and the radius of influence calculated for each soil unit using the computer program Hyperventilate (EPA, 1992) or other similar method. The design of the SVE system described below would be reviewed and changes made, as appropriate.

6.1.2 SVE Implementation Plan

The proposed SVE system has been developed based on the following assumptions:

- The radius of influence for the upper permeable soil will be a minimum of 30 feet.
- The radius of influence for the silty clay and clay unit will be approximately 15 feet.
- The silty sand, sand, and silty clay from approximately ground surface to 35 to 40 feet bgs can be managed as one unit for the purpose of vapor extraction.
- The clayey unit and silty clay unit from approximately 35 to 40 feet bgs to 55 feet bgs can be managed as a separate unit for purposes of vapor extraction.
- Pilot testing will be conducted to determine the actual radius of influence and flow rates within the two units.

The proposed SVE system will consist of extraction wells, a high vacuum blower, a knockout pot, and a thermal/catalytic oxidizer or vapor phase carbon.

A total of 5 vapor extraction wells are anticipated for the upper soil unit. The preliminary locations for these extraction wells and the anticipated radius of influence are shown on Figure 14.

A total of 14 extraction wells are anticipated for the lower soil unit. The preliminary locations for these wells and the anticipated radius of influence are shown on Figure 15.

Health and Safety and Permitting

A site-specific health and safety plan (HASP) will be prepared in accordance with the relevant provisions of Title 8, Section 5192 of the California Health and Safety Code and Title 40, Section 1910.120 of the Federal Code of Regulations. This health and safety plan will incorporate all fieldwork activities.

Regulatory permits or approvals that will be required for the SVE system include:

- Approval of this RAP by the LARWQCB;
- A permit to construct and operate from the South Coast Air Quality Management District (SCAQMD);
- Well installation permits from the Los Angeles County Department of Health Services; and
- An electrical permit from the City of Santa Fe Springs.

SVE Well Installation

Five SVE wells will be installed in the upper soil unit and 14 wells will be installed in the lower soil unit. SVE wells will be installed using a hollow stem auger. The wells will be constructed with 2-inch diameter Schedule 40 PVC casing and screened with 0.020-inch slots. A sand pack consisting of #2/12 sand will be placed in the annulus of the well to a height of approximately 2 feet above the screen. An annular plug consisting of approximately 2 feet of hydrated bentonite pellets will be placed above the sand pack.

A lithologic log will be prepared for each boring describing the soil type, color, moisture, and other pertinent information.

Continuous coring starting at 30 feet bgs will be conducted to identify the lower silty clay/clayey unit above the groundwater table. Soil samples will be screened in the field by taking headspace measurements using a PID or FID. The soil samples will be placed in a Ziploc bag and allowed to set for 10 minutes. The headspace reading will then be taken by inserting the PID or FID probe in to the air space within the bag. The highest reading at each depth interval will be recorded.

Soil samples from one VES well boring, installed in the area of highest contamination, will be selected for analysis of MTBE using EPA Method 8020. The purpose of this soil sampling is to provide the RWQCB with necessary information required for future site closure. Soil samples will be collected in brass or stainless steel liners, sealed, labeled, and placed in an ice chest for transportation under chain-of-custody to a certified laboratory.

All sampling and drilling equipment will be decontaminated by steam cleaning and/or washing with tap water, a laboratory grade detergent/water solution, a tap rinse, and a final distilled water rinse prior to use at each drilling or sampling location.

Soil cuttings and equipment decontamination water will be placed in DOT-approved, 55-gallon drums. The drums will be labeled, covered and sealed. The drums will be temporarily stored in a secure area at the Site, pending disposal in accordance with the applicable regulations.

SVE System

Soil vapors will be extracted from the soil using a high vacuum blower. The system, including the blower, knockout pot, thermal oxidizer or activated carbon, and controls will be skid mounted and secured to the concrete pad south of the former USTs. This area will be fenced to prevent unwanted access to the treatment system.

Piping from each well will be brought to a 4-inch diameter manifold within the fenced enclosure. It is assumed that all piping will be secured aboveground. Flow from individual wells will be controlled to allow for system optimization, such as restricting flow from one unit or individual wells to manage remediation. Sample ports will be installed for each well, influent to the oxidizer, and from the oxidizer effluent air stream.

SVE Monitoring

SVE monitoring will consist of (1) monitoring required to comply with the SCAQMD permit to operate, and (2) monitoring to evaluate remediation progress.

SCAQMD permit monitoring will involve the collection of influent and effluent samples on a weekly to monthly basis. These samples will be collected in a Tedlar bag and VOC measurements taken using a PID or FID. VOC measurements will be recorded on a log, kept at the Site, and evaluated for compliance with operating permit conditions. Total flow and temperature measurements will be monitored continuously and recorded on chart paper, which will be stored at the Site to comply with permit conditions.

Remediation progress monitoring will involve the following:

1. During system startup, initial VOC concentrations will be collected from each extraction well and the 4-inch diameter header (influent to treatment system). These samples will be collected in Tedlar bags and sent to a certified laboratory under chain-of-custody for analysis of halogenated and aromatic compounds using EPA Methods 8010/8020. PID/FID measurements will also be recorder at each well and the header. VOC measurements will be collected periodically and measured using a PID/FID throughout the startup period. Once the total VOC influent concentration stabilizes, a Tedlar bag sample will be collected for laboratory analysis to establish baseline conditions.

2. Weekly monitoring will be conducted during full-scale operation. PID measurements will be made from individual wells and at the header to record VOC concentrations. Monthly Tedlar bag samples will be collected and analyzed by the laboratory for halogenated and aromatic compounds using EPA Methods 8010/8020. This information will be documented and used to evaluate remediation progress on a monthly basis. This will consist of evaluating the following operating data:
 - Date and time of measurements;
 - Extraction flow rate;
 - Influent total VOC concentration (measured using a PID);
 - Volume removal rate;
 - Estimated mass removed; and
 - Estimated cumulative mass removed.
3. The SVE system is expected to operate until a decline in VOC concentrations over time in extracted soil vapor reaches asymptotic levels. Continued SVE operation will be evaluated by measuring the VOC "rebound concentration" of the influent vapor stream (LARWQCB, 1996). Rebound concentration monitoring will begin when no decrease in the influent vapor concentration is observed. When no decrease in the VOC concentration occurs the system will be shut down for several weeks and the soil vapors in the vadose zone will be allowed to equilibrate. Prior to the system shutdown, a Tedlar bag sample will be collected from the influent vapor stream and analyzed by the laboratory for halogenated and aromatic compounds using EPA Methods 8010/8020. After the shutdown period, the system will be restarted and a Tedlar bag sample will be collected and analyzed to evaluate rebound over time. The shutdown and restart process will continue until the decline of the influent VOC concentration reaches an asymptotic level. At this point an evaluation will be performed to determine the extent of VOC removal from the soil units and the benefit of further pulsing the extraction system.

Closure Sampling

Soil sampling will be conducted to verify that a reduction in VOC mass has occurred in the vadose zone. Soil borings will be drilled at selected locations and samples collected at various depths in both the upper and lower soil units. A proposed closure-sampling plan will be submitted for LARWQCB approval prior to implementation of closure sampling. The sampling plan will identify sample locations, sampling protocols, analytical procedures, and field procedures.

6.1.3 Reporting

A remedial action implementation report will be prepared and submitted to the LARWQCB. The report will contain tables and figures as necessary. The anticipated information to be tabulated include:

- Soil sample analytical data from extraction well installation;
- Vapor sample data from the SVE pilot test;
- SVE pilot test results;
- SVE extraction well construction details and boring logs; and
- A description of the SVE system final design and installation.

The anticipated figures include a Site location map and Site maps showing the boring/well locations, SVE conveyance piping and treatment system, and vacuum monitoring data from the pilot test.

Periodic remediation monitoring reports will be prepared and submitted to the LARWQCB. The following information will be included in these reports:

- Date and time of vapor measurements;
- Extraction flow rate;
- Influent total VOC concentration (measured using a PID and laboratory analysis);
- Volume removal rate;
- Estimated mass removed; and
- Estimated cumulative mass removed.

6.2 GROUNDWATER REMEDIATION

Pacific Edge has reviewed site-specific information with a vendor specializing in in-situ chemical oxidation that has successfully applied this technology at numerous private and public sector sites. This review indicated that in-situ chemical oxidation is an appropriate technology for mass reduction of COI in groundwater at the Site.

6.2.1 In-Situ Chemical Oxidation Bench-Scale Test

An in-situ chemical oxidation bench-scale test will be conducted on groundwater and saturated soil from the Site. The bench-scale test objectives are to:

- Verify that the oxidative process is effective under site-specific conditions.
- Verify that the oxidative process is capable of achieving significant contaminant destruction.
- Determine the optimal chemical application mix.

Impacted groundwater collected from MW-1, MW-2, and MW-10 will be used for the bench-scale test. Approximately 3 liters of groundwater will be collected for the test. Approximately 13 pounds of impacted saturated soil is required for the test. Impacted saturated soil cuttings will be collected during the installation of the lower zone wells installed for the SVE pilot test.

Reaction vessels will be used during the bench-scale test. For each reaction vessel, adequate soil and groundwater will be added leaving enough headspace for pre-determined reagent volumes to be injected. Initial VOC concentrations will be determined for saturated soil and groundwater. In addition, saturated soils will be analyzed for iron, manganese, and total organic carbon.

The bench-scale test will be performed by injecting a series of catalyst and oxidizer amendments into the reaction vessels. Parallel monitoring vessels will receive same doses as the corresponding main reaction vessels. Samples will be periodically withdrawn from the monitoring vessels for hydrogen peroxide analysis. One of the reaction vessels will initially be isolated for control purposes and will receive an equivalent volume of distilled water to compensate for reagent volumes injected into treatment vessels. Following the last treatment, all reaction vessels will remain undisturbed until the oxidizer is completely consumed. Saturated soil and groundwater from each vessel will be analyzed for residual VOC concentrations.

At the completion of the bench-scale test the data will be analyzed and the optimal mix for mass reduction will be determined. A bench-scale report will be prepared and submitted to the LARWQCB for review. This report will describe the bench-scale results and present the optimal mix design proposed for application at the Site.

6.2.2 In-situ Chemical Oxidation Pilot Test

Upon completion of the bench-scale test a detailed workplan will be prepared for an in-situ chemical oxidation pilot test. This workplan will be submitted to the RWQCB for review and approval. The objectives of the pilot test is to:

- Determine the infiltration rate;
- Determine proper application well spacing for full scale treatment;
- Determine contaminant concentrations after treatment; and
- Evaluate hydraulic and vapor control methods.

It is our understanding that the RWQCB now requires hydraulic and vapor control during groundwater treatment using hydrogen peroxide. To provide vapor control, the pilot test will be conducted during operation of the soil vapor extraction system. Two hydraulic control methods will be evaluated during the pilot test. These two methods are:

- Groundwater extraction using a down well pump; and
- Groundwater extraction using a stinger.

Regulatory permits or approvals that will be required for the pilot test include:

- Approval of this RAP and the pilot test workplan by the LARWQCB;
- CEQA reporting and determination or waiver; and
- Well installation permits from the Los Angeles County Department of Health Services.

The implementation of full scale in-situ chemical oxidation described below would be reviewed upon completion of the pilot test. Recommendations for full scale treatment and hydraulic and vapor control will be provided in a pilot test report.

6.2.3 Full Scale In-Situ Chemical Oxidation and Natural Attenuation Implementation

The in-situ chemical oxidation and natural attenuation groundwater remedial alternative has been developed based on the following assumptions:

- In-situ chemical oxidation will be used to reduce the mass of COI within the approximate area shown on Figure 13. This area is in the central portion of the groundwater target area where the highest COI concentrations are located.
- Approximately 16 to twenty 2-inch diameter wells will be installed within the area shown on Figure 13 and used for the application of chemical oxidation treatments.
- Three application treatments will be required to significantly reduce the mass of contaminants within the target area.
- Natural attenuation and plume stability of the COI will be monitored by continued implementation of the semi-annual groundwater monitoring and sampling program.

Health and Safety and Permitting

The site-specific health and safety plan (HASP) will incorporate all fieldwork activities associated with in-situ chemical oxidation treatment and include measures for safe handling of all chemicals.

Regulatory permits or approvals that will be required for the in-situ chemical oxidation and monitored natural attenuation include:

- Approval of this RAP by the LARWQCB;
- CEQA reporting and determination or waiver; and
- Well installation permits from the Los Angeles County Department of Health Services.

Application Well Installation

Based on the review of site data, a conservative well spacing of 625 square feet per well will be used for treatment. Therefore, approximately 16 application wells will be installed to a total depth of 75 feet bgs. The application wells will be installed using a hollow stem auger. The wells will be constructed with 2-inch diameter stainless steel and screened with 0.020-inch slots from first approximately 5 feet above groundwater to a depth of 75 feet bgs. A sand pack consisting of #2/12 sand will be placed in the annulus of the well to a height of approximately 2 feet above the screen. An annular plug consisting of approximately 2 feet of hydrated bentonite pellets will be placed above the sand pack.

All sampling and drilling equipment will be decontaminated by steam cleaning and/or washing with tap water, a laboratory grade detergent/water solution, a tap rinse, and a final distilled water rinse prior to use at each drilling or sampling location.

Soil cuttings and equipment decontamination water will be placed in DOT-approved, 55-gallon drums. The drums will be labeled, covered and sealed. The drums will be temporarily stored in a secure area at the Site, pending disposal in accordance with the applicable regulations.

In-Situ Chemical Oxidation Treatment

It is anticipated that three treatment applications will be required to significantly reduce the mass of COI within the treatment area. The chemical treatment mix determined by bench and pilot testing will be applied through the 16 application wells.

Existing wells MW-1, MW-2, MW-10, and three to six application wells will be designated as the wells to be sampled to monitor the treatment application process. Prior to the initial treatment application, groundwater samples will be collected from the designated wells to provide a baseline for treatment monitoring. Treatment monitoring will include measuring pH, temperature, and dissolved oxygen. In addition, groundwater samples will be shipped under chain-of-custody to a certified laboratory and analyzed for halogenated and aromatic compounds using EPA Method 8010/8020.

During the initial application, pH, temperature, and dissolved oxygen will be measured in groundwater samples collected from the designated wells to monitor the treatment process. The second treatment application will occur 2 to 4 weeks after the completion of the initial treatment.

The second treatment process will again be monitored by measuring pH, temperature, and dissolved oxygen at the designated wells.

Following a period of 4 to 6 weeks after the second treatment application, groundwater samples will be collected and analyzed by the laboratory for halogenated and aromatic compounds using EPA Methods 8010/8020. Based on the analytical results, a third application may be required at all or select wells. The third treatment application would again be monitored by measuring pH, temperature, and dissolved oxygen in groundwater collected from the designated wells.

Within 2 to 4 weeks after the completion of the final treatment application all monitoring wells (MW-1 through MW-11) will be sampled and analyzed by the laboratory for halogenated and aromatic compounds using EPA Methods 8010/8020. This sampling event will serve as a baseline for monitored natural attenuation of groundwater at the Site.

All groundwater sampling will be conducted in accordance with the procedures and protocols currently being implemented by Pacific Edge during semi-annual groundwater monitoring at the Site.

6.2.4 In-Situ Chemical Oxidation Reporting

Following treatment applications a report will be prepared and submitted to the LARWQCB. This report will include:

- Baseline contaminant concentrations in designated wells prior to treatment;
- A description of treatment application activities;
- Monitoring data obtained during each treatment application;
- Volume and rate of treatment application mix applied during each treatment;
- Location and number of application wells;
- Contaminant concentrations at the completion of in-situ chemical oxidation; and
- Estimated cumulative mass removed.

6.2.5 Monitored Natural Attenuation

Continuation of the semi-annual groundwater monitoring program will be used to evaluate the natural attenuation processes for BTEX, plume stability for chlorinated compounds, and document the rate of residual contamination reduction within the groundwater plume. The semi-annual sampling events will consist of sampling and monitoring eleven wells (MW-1 through MW-11) at the Site. Groundwater samples will be analyzed for the following compounds:

- Halogenated volatile organic compounds using EPA Method 8010
- Aromatic compounds using EPA Method 8020
- Surfactants – MBAS using EPA Method 425.1
- pH using EPA Method 150.1
- Total Petroleum Hydrocarbons – diesel range (TPHd) by DHS LUFT Method.

Groundwater sampling events will occur in April and October. Reports documenting sampling activities and analytical results will also include:

- A figure illustrating the groundwater flow direction;

- Figures illustrating the COI plume, and
- A discussion regarding plume stability and observed trends associated with the natural attenuation process.

7.0 SCHEDULE

7.1 SOIL REMEDIATION

It is anticipated that work on the SVE pilot will begin approximately four weeks after approval of this revised RAP. Several months will be required prior to implementation of the full scale SVE system to allow for system procurement and permitting. Installation and startup of the full scale SVE system can be accomplished within one to two months following equipment procurement and obtaining permits.

7.2 GROUNDWATER REMEDIATION

Groundwater and saturated soil samples will be collected during the SVE pilot study. These samples will be used for the in-situ chemical oxidation bench-scale study. At the completion of bench scale study (2 to 3 weeks) the CEQA reporting process for the oxidation pilot test and full-scale implementation will be undertaken. It is anticipated that 3 to 6 months will be required for a CEQA negative declaration determination. The oxidation pilot test will follow obtainment of necessary permits and approvals. It is estimated that approximately 2 months will be required for the pilot test and evaluation of the results. Full-scale treatment is anticipated to require three to four months from the installation of application wells through three treatment applications.

Table 17 (MW-11)

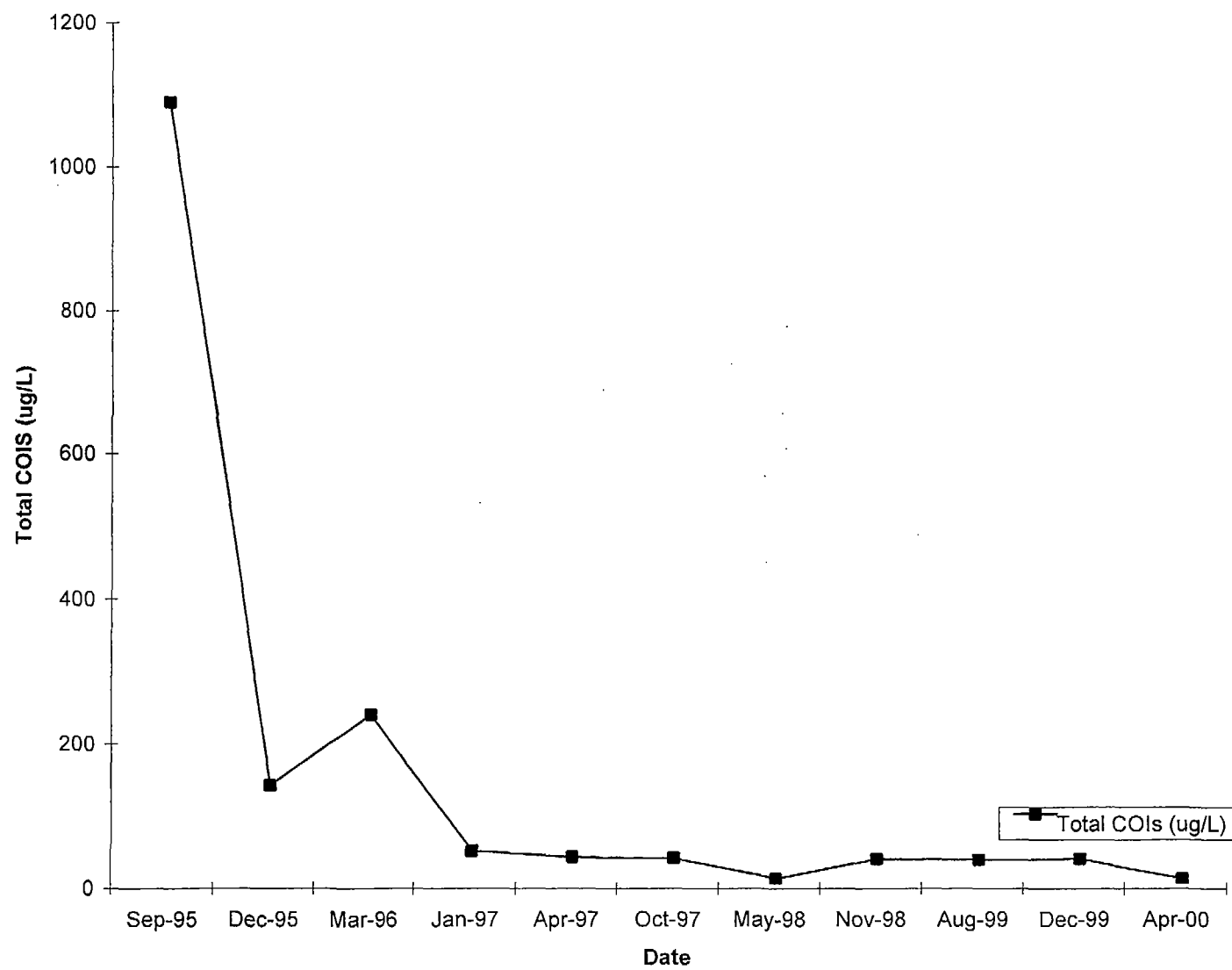


Table 16 (MW-10)

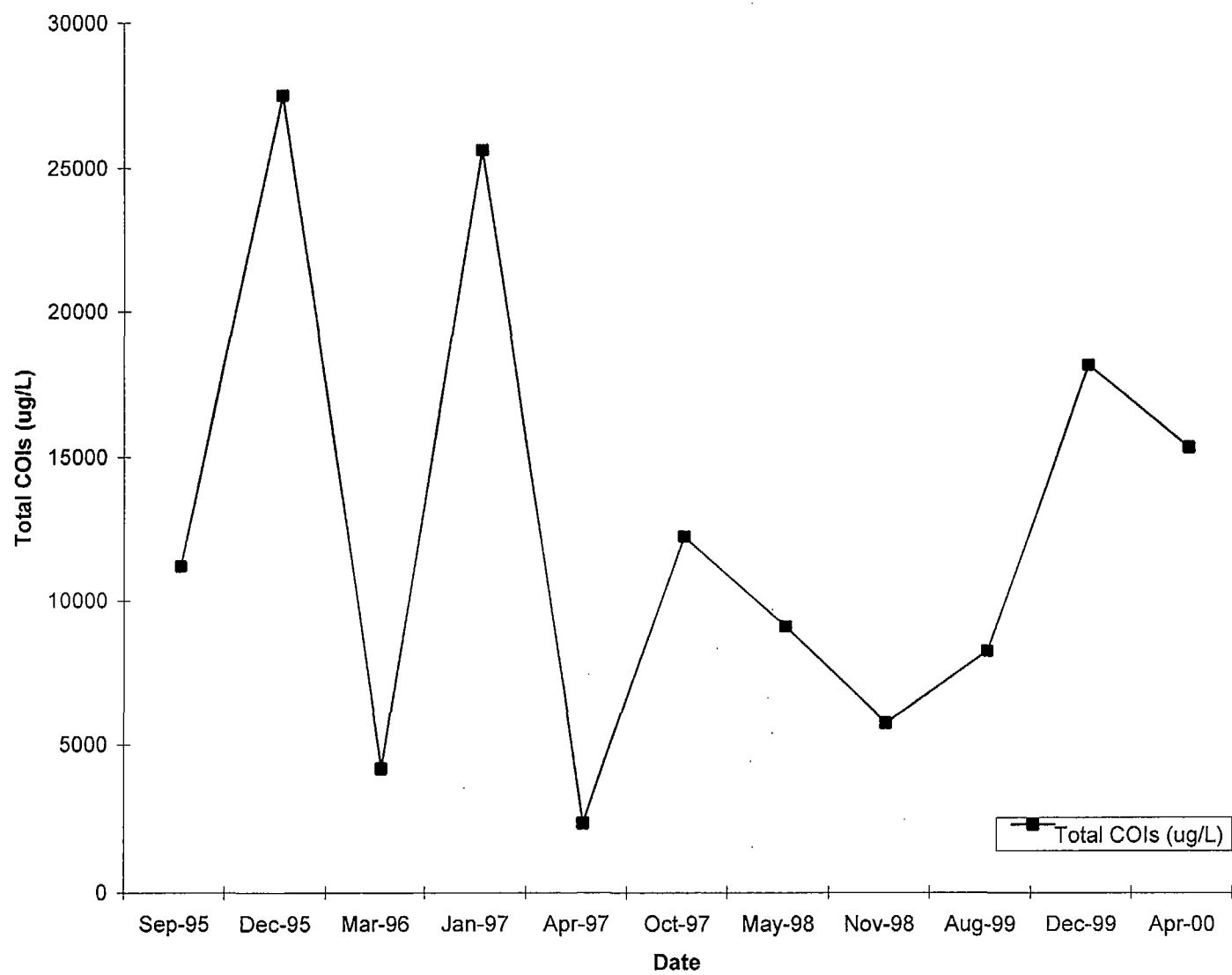


Table 15 (MW-9)

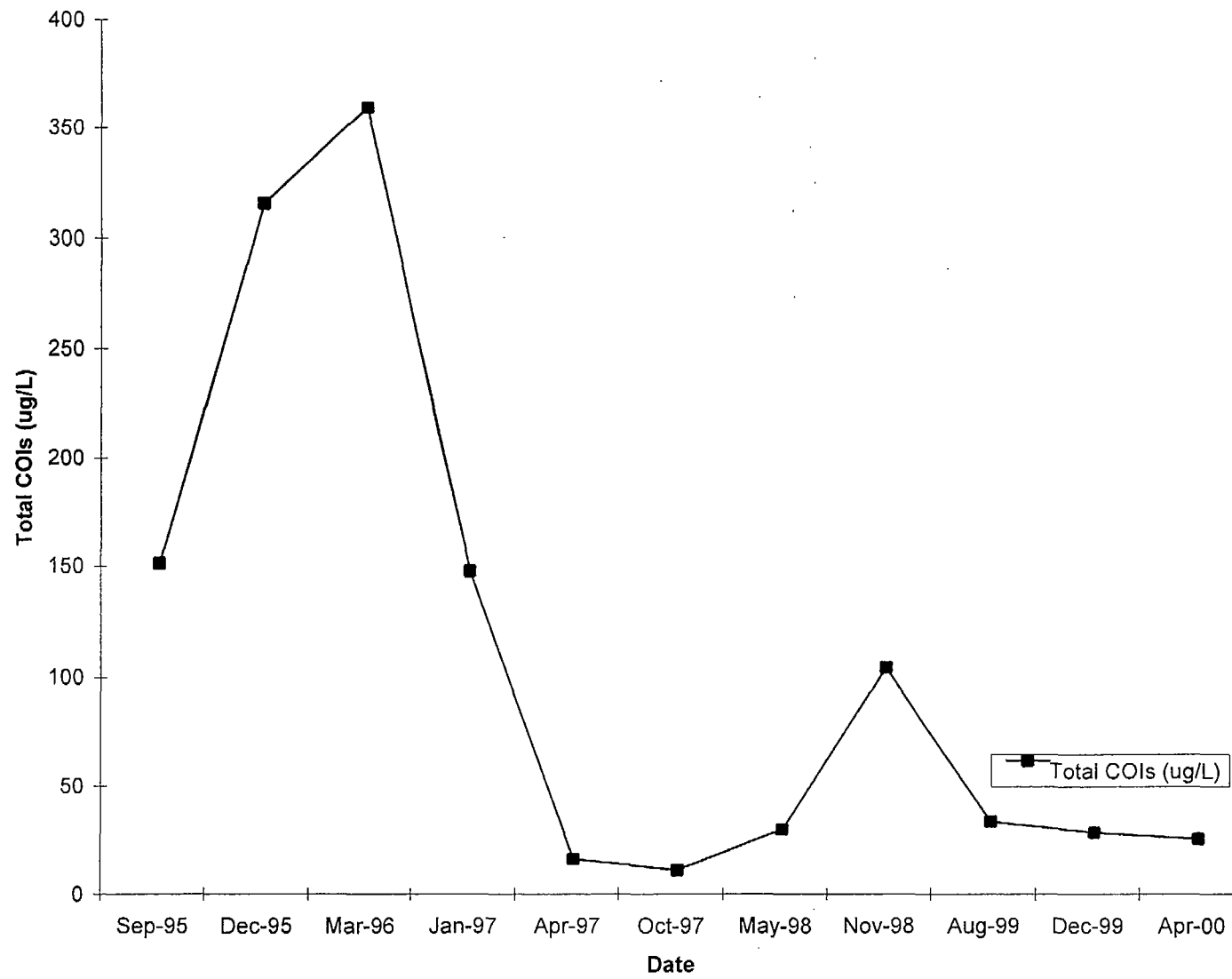


Table 14 (MW-8)

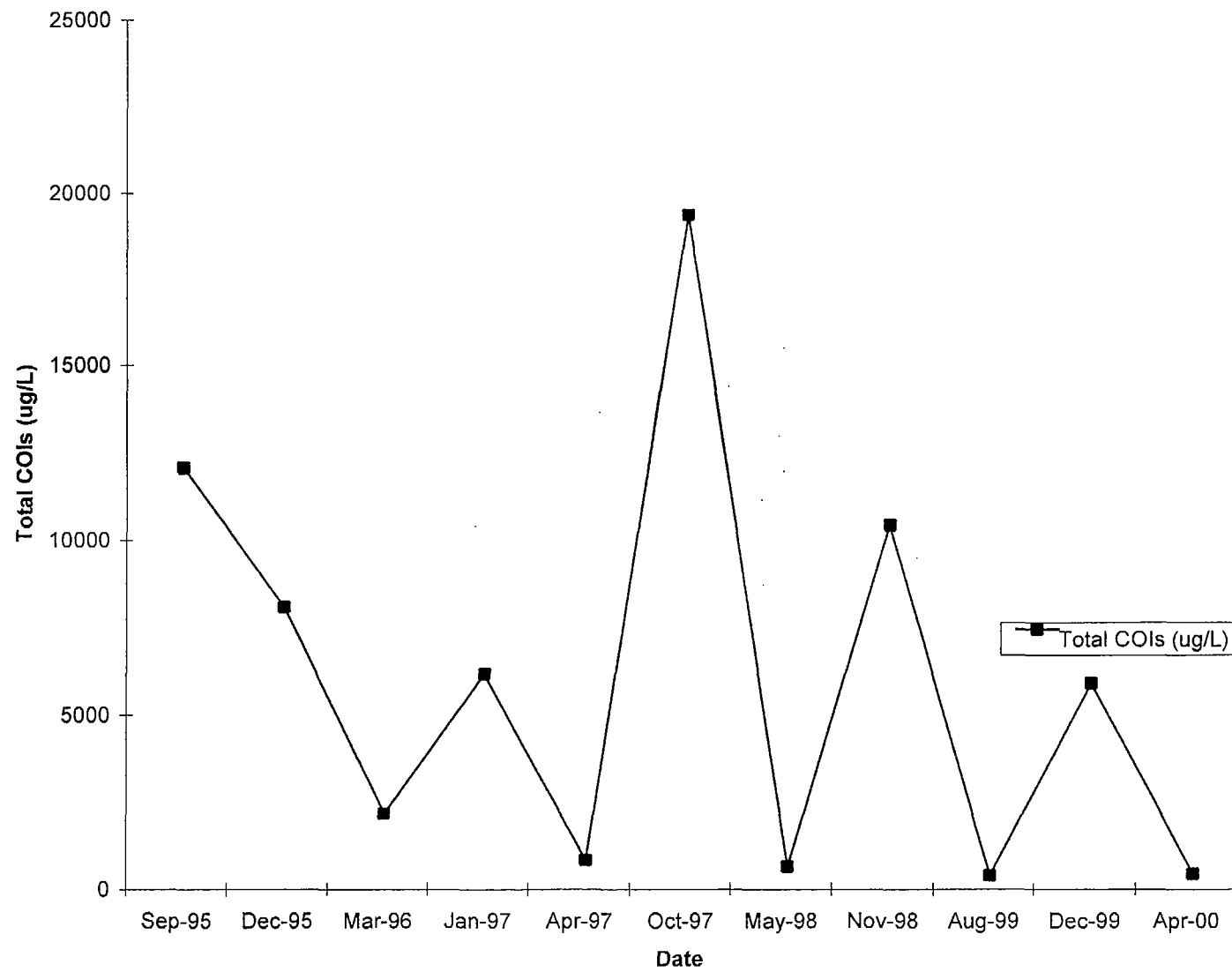


Table 13 (MW-7)

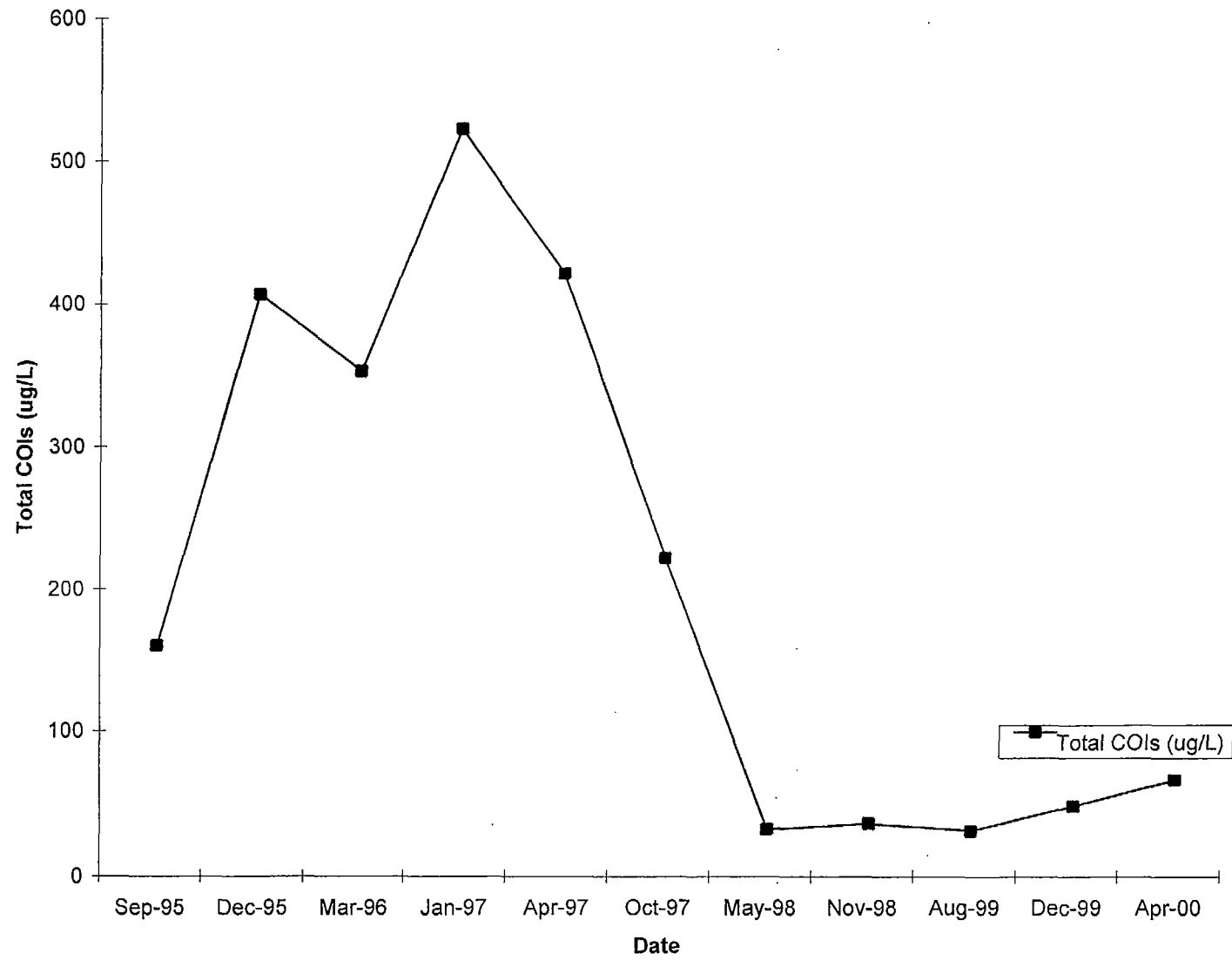


Table 12 (MW-6)

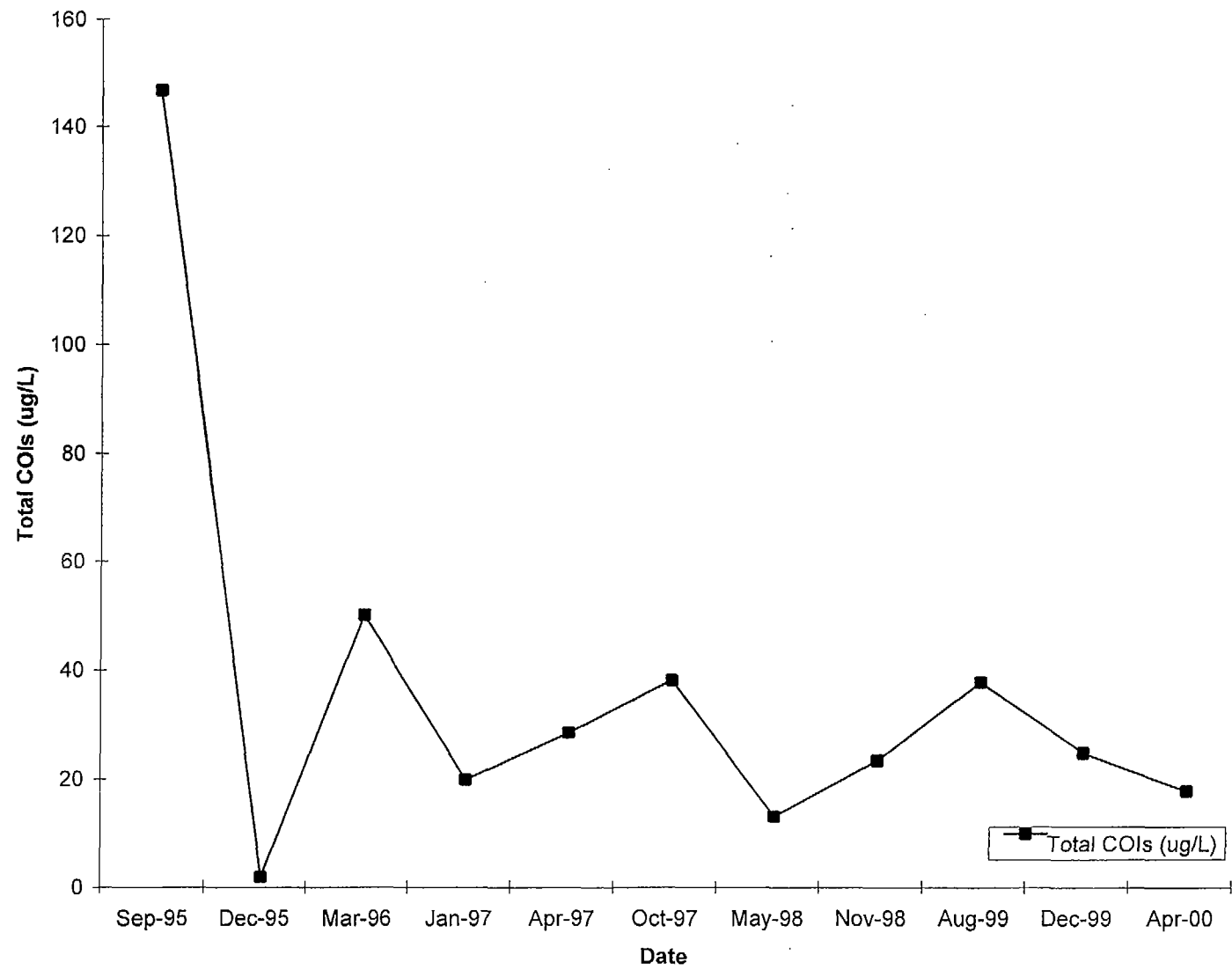


Table 11 (MW-5)

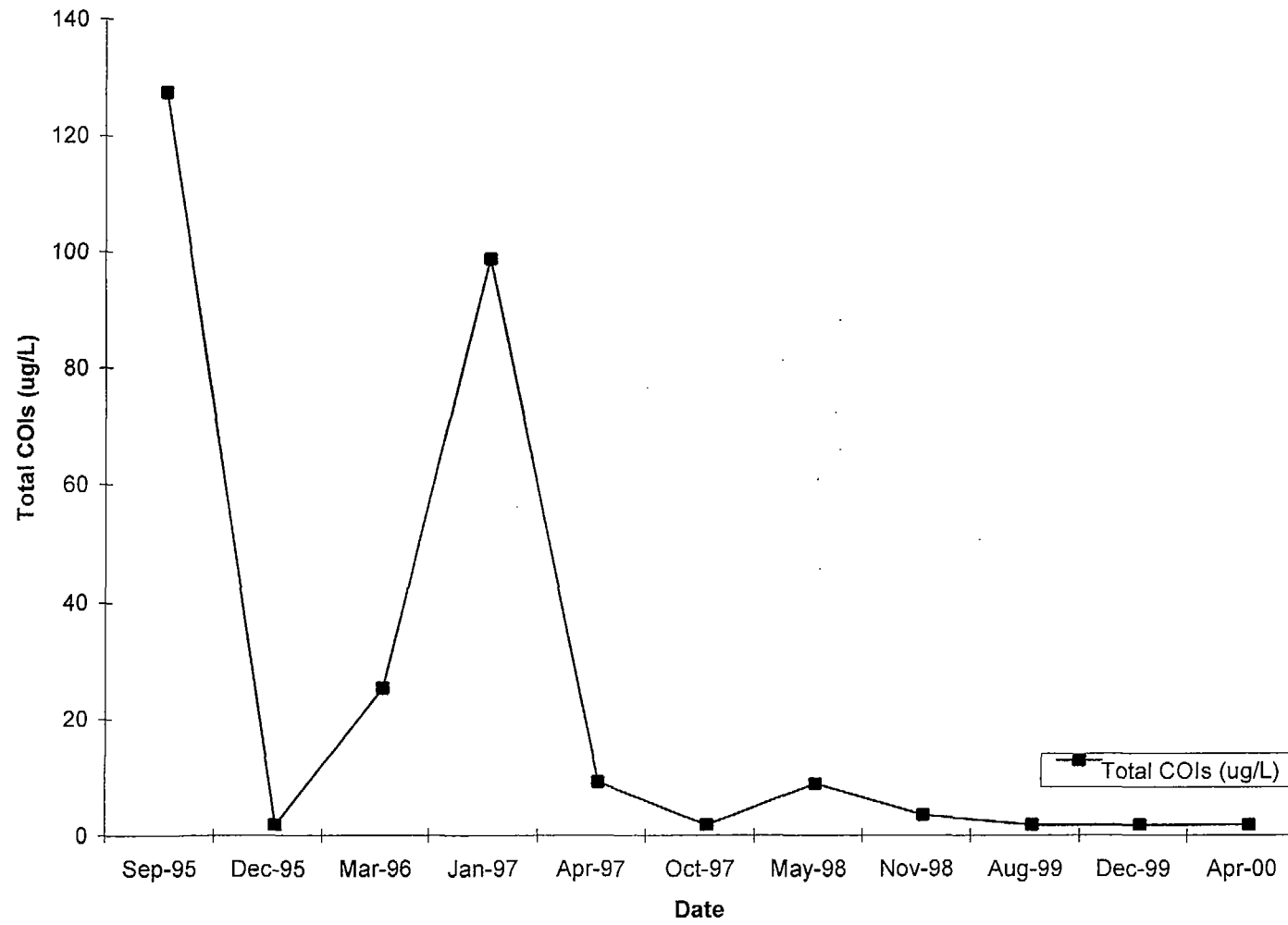


Table 10 (MW-4)

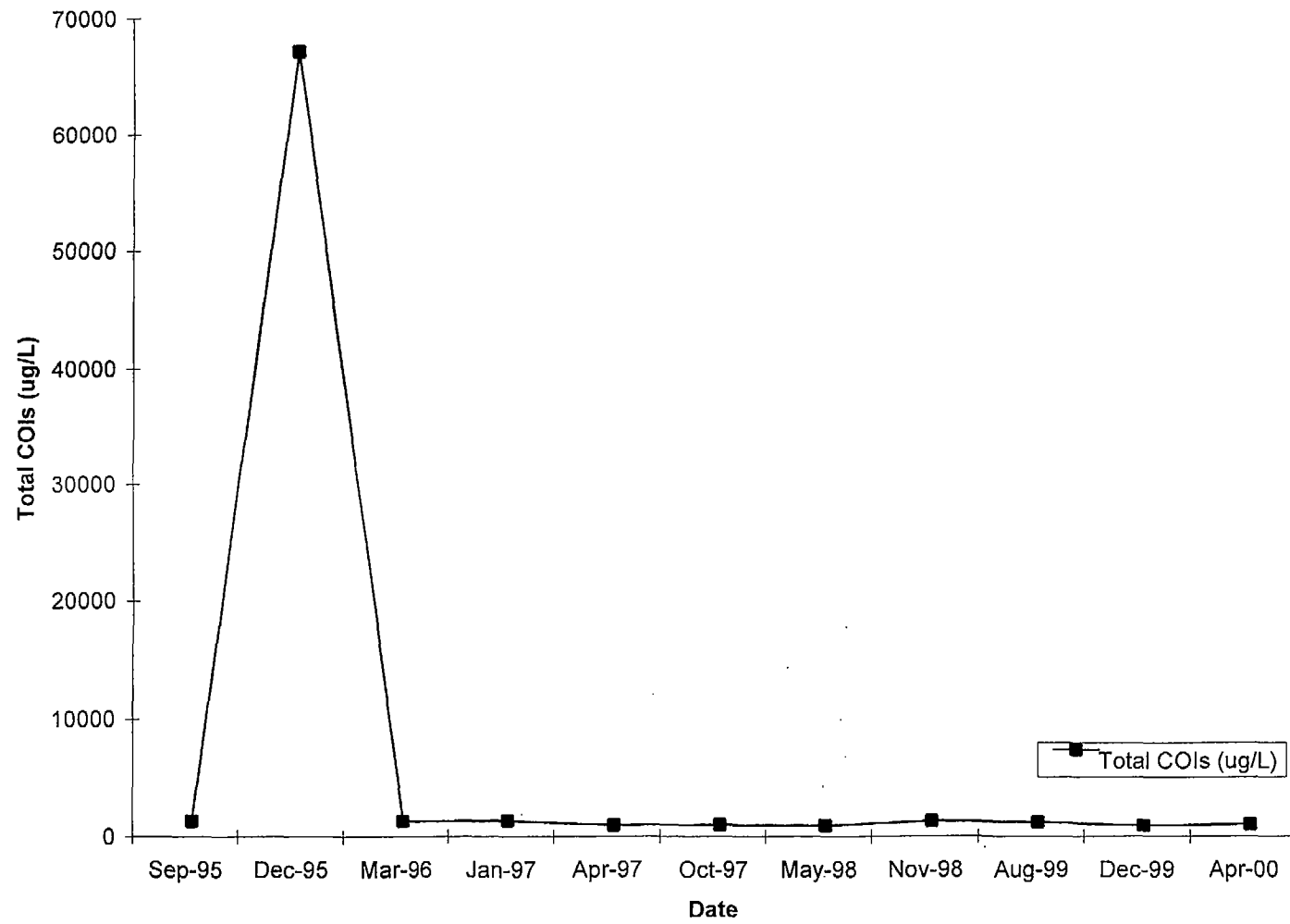


Table 9 (MW-3)

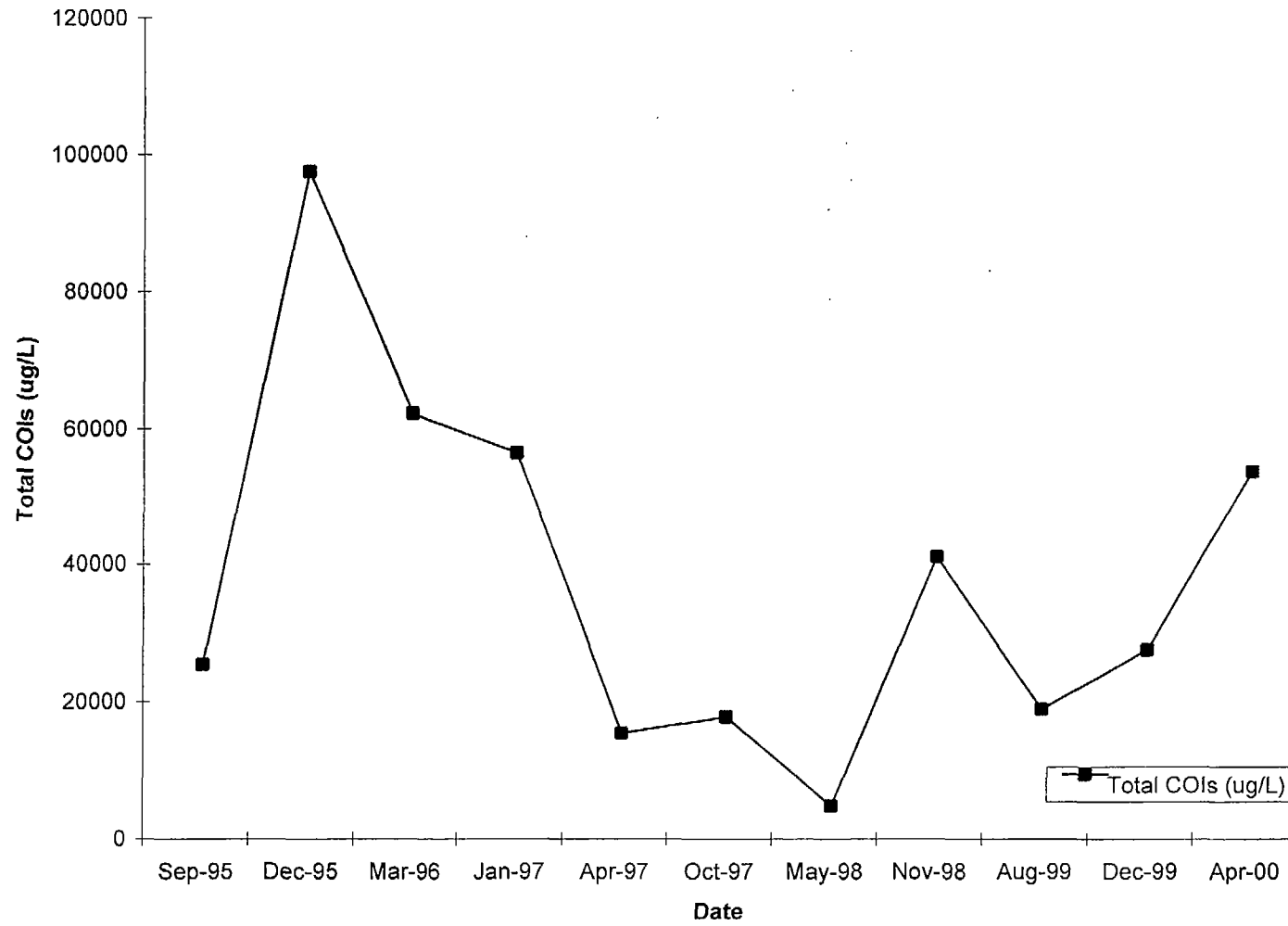


Table 8 (MW-2)

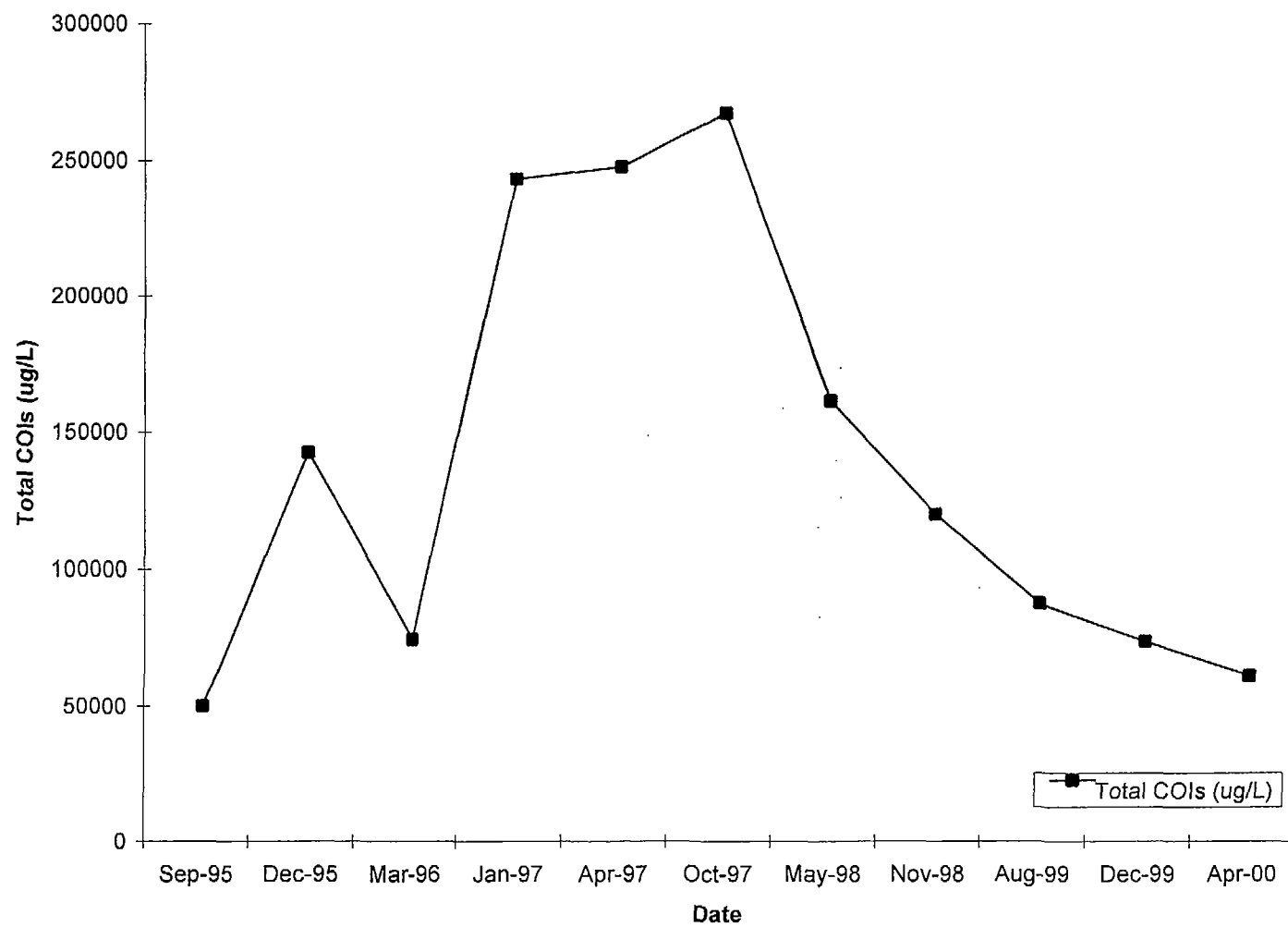


Table 7 (MW-1)

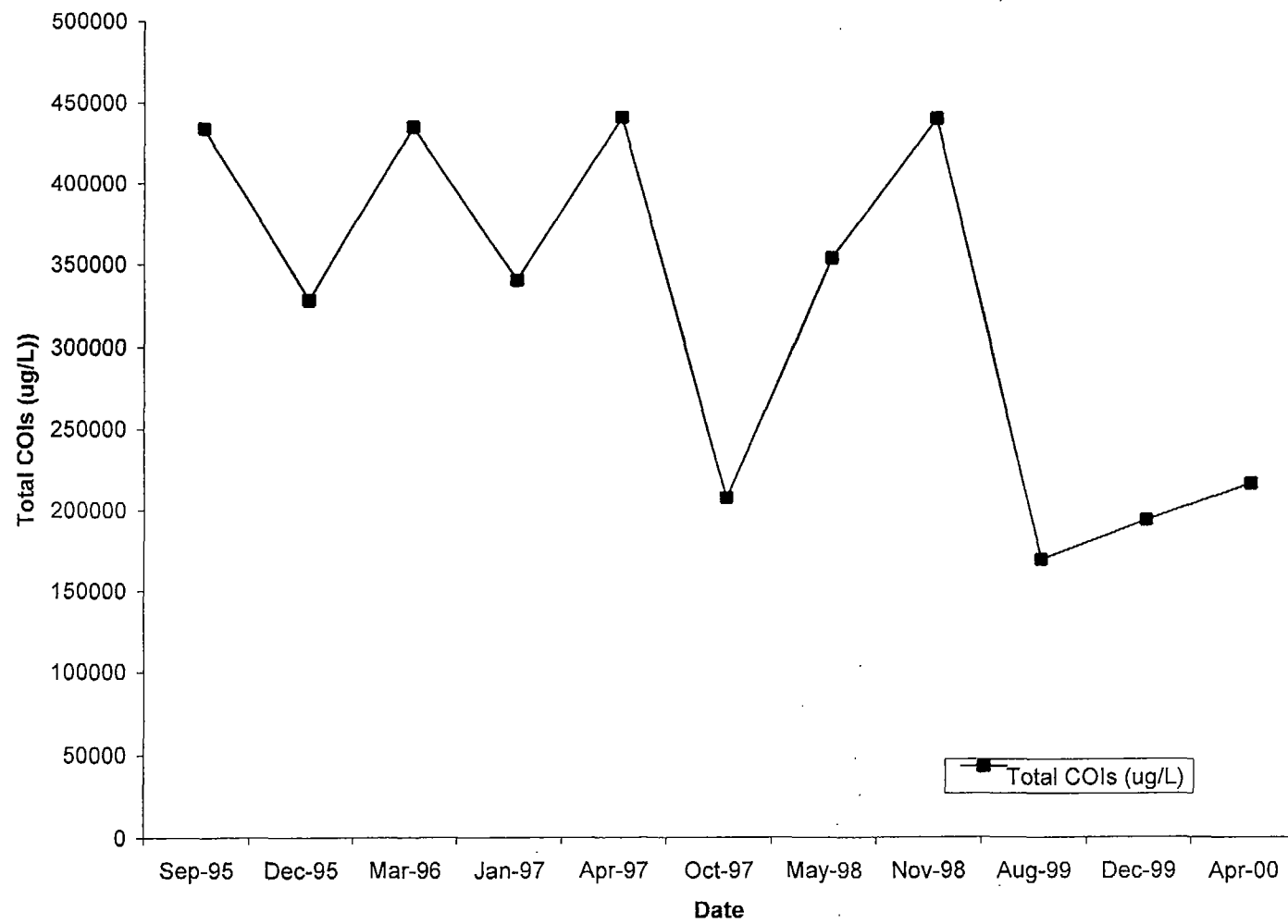


TABLE 6
Evaluation Summary
Remedial Alternatives for Groundwater

Remedial Alternative	Effectiveness	Implementability
In-Situ Remedial Alternatives		
Air Sparging	Limited effectiveness due to clay confining layer. Volatilized VOCs & BTEX in groundwater will be prohibited from migration up through clay layer where SVE wells can collect them for treatment. Requires using appropriate SVE treatment system.	Equipment and materials that are necessary to implement this remedial alternative are readily available. A permit to construct and operate from the SCAQMD for the SVE system will be required.
Chemical Oxidation	Effective for treatment of VOCs & BTEX. When combined with other groundwater remedial alternatives, such as, natural attenuation, is effective at reducing long term operation of pump and treat system. Can target capillary fringe (smear zone), which increases mass removal efforts.	Equipment and materials that are necessary to implement this remedial alternative are readily available. Bench-Scale testing would be required to determine the site specific treatment chemistry and number of treatments. Pilot testing would be required to determine well spacing and radius of effective treatment. Chemical oxidation treatment would be combined with another remedial alternative, such as natural attenuation, to augment mass removal efforts. CEQA requirements would apply for the introduction of hydrogen peroxide into groundwater.
Natural Attenuation	Effective for treatment of VOCs & BTEX. Is effective at reducing mass or concentration of a compound by naturally occurring physical, chemical, and biological processes. Natural attenuation occurs at most contaminant sites but a varying rates and degrees of effectiveness. The total COI concentration at site monitoring wells has been stable to decreasing, therefore the plume can be classified as a "stable plume or shrinking plume", indicating that natural attenuation is occurring at the site.	On-going groundwater monitoring at the site could easily be used to monitor and evaluate natural attenuation progress at the site. Implementing another remedial alternative for mass removal within the hot spot/source area could reduce the mass loading rate for COIs to groundwater, thereby accelerating the natural attenuation process at the site.
Ex-Situ Remedial Alternatives		
Dual Phase Extraction	Effective for treatment of VOCs & BTEX. Requires using an appropriate vapor treatment system. Additional treatment process will be required to address VOCs & BTEX in the extracted groundwater. Dual phase extraction is most effective for low yielding aquifers. Can target capillary fringe (smear zone), which increases mass removal efforts.	Equipment and materials that are necessary to implement this remedial alternative are readily available. This remediation alternative is considered an innovative technology and pilot testing would be required to determine the site specific parameters prior to implementation. A permit to construct and operate from the SCAQMD for the vapor extraction portion of the system will be required. Treated groundwater may be discharged to a local publicly-owned treatment works (POTW) with approval of the appropriate agency or surface water discharge (NPDES permit).

TABLE 6
Evaluation Summary
Remedial Alternatives for Groundwater

Remedial Alternative	Effectiveness	Implementability
Ex-Situ Remedial Alternatives		
Groundwater Extraction with Liquid-Phase Carbon Adsorption	<p>Effective for mass removal and treatment of VOCs & BTEX.</p> <p>Long term system operation is typical. This remedial alternative requires the replacement of spent activated carbon.</p>	<p>Equipment and materials that are necessary to implement this remedial alternative are readily available.</p> <p>Treated groundwater may be discharged to a local publicly-owned treatment works (POTW) with approval of the appropriate agency or surface water discharge (NPDES permit).</p>
Groundwater Extraction with Air Stripping	<p>Effective for mass removal and treatment of VOCs & BTEX.</p> <p>Long term system operation is typical. This remedial alternative will require an air emission control system.</p>	<p>Equipment and materials that are necessary to implement this remedial alternative are readily available.</p> <p>Treated groundwater may be discharged to a local publicly-owned treatment works (POTW) with approval of the appropriate agency or surface water discharge (NPDES permit).</p> <p>A permit from the SCAQMD for the air emission control will be required.</p>
Groundwater Extraction with Ultraviolet (UV) Oxidation Treatment	<p>Effective for mass removal and treatment of VOCs & BTEX.</p> <p>Long term system operation is typical. This remedial alternative will oxidize chemicals and as a result, is effective in reducing long term liability.</p>	<p>Equipment and materials that are necessary to implement this remedial alternative are readily available.</p> <p>Treated groundwater may be discharged to a local publicly-owned treatment works (POTW) with approval of the appropriate agency or surface water discharge (NPDES permit).</p>

TABLE 5
Evaluation Summary
Remedial Alternatives for Soil

Remedial Alternative	Effectiveness	Implementability
In-Situ Remedial Alternatives		
Soil Vapor Extraction (SVE)	<p>Effective at removal of VOCs & BTEX in high permeability soil.</p> <p>Less effective in soil with low permeability, such as clay. Under some conditions, SVE can be used in clay with a higher vacuum for a longer period of time.</p> <p>Due to the amount of BTEX in soil a thermal oxidizer will be most efficient for vapor control.</p>	<p>Equipment and materials that are necessary to implement this remedial alternative are readily available.</p> <p>A permit to construct and operate from the SCAQMD for the SVE system will be required.</p>
Bioventing	<p>Effective at removal of VOCs & BTEX in high permeability soil.</p> <p>Less effective in soil with low permeability, such as clay. Under some conditions, bioventing can be used in clay with a higher vacuum for a longer period of time.</p>	<p>Equipment and materials that are necessary to implement this remedial alternative are readily available.</p> <p>A permit to construct and operate from the SCAQMD for the extraction system will be required.</p>
Chemical Oxidation	<p>Effective at removal of VOCs & BTEX in high permeability soil.</p> <p>Less effective in soil with low permeability, such as clay. Under some conditions, bioventing can be used in clay with a higher vacuum for a longer period of time.</p>	<p>Equipment and materials that are necessary to implement this remedial alternative are readily available.</p> <p>RWQCB will require soil vapor control during application of hydrogen peroxide. CEQA requirements would apply for addition of hydrogen peroxide into the subsurface soil.</p>

TABLE 5
Evaluation Summary
Remedial Alternatives for Soil

Remedial Alternative	Effectiveness	Implementability
Ex-Situ Remedial Alternatives		
On-Site Soil Vapor Extraction	<p>Effective at removal of VOCs & BTEX in high permeability soil.</p> <p>Less effective in soil with low permeability, such as clay. Under some conditions, SVE can be used in clay with a higher vacuum for a longer period of time.</p> <p>Due to the amount of BTEX in soil a thermal oxidizer will be most efficient for vapor control.</p>	<p>An area to stockpile excavated soil is limited. Equipment and materials that are necessary to implement this remedial alternative are readily available.</p> <p>A permit to operate the SVE unit from the SCAQMD will be required.</p> <p>Deeper excavation may be limited due to railroad tracks to the west and aboveground storage tanks to the east.</p> <p>Treated soil could be used as backfill, however the excavation could not remain open until treatment is complete.</p>
On-Site Low Temperature Thermal Desorption (LTTD)	<p>Effective at removal of VOCs & BTEX in high permeability soil.</p> <p>Less effective in low permeability soil, such as clay, and soil with a high moisture content.</p>	<p>An area to stockpile excavated soil is limited. Equipment and materials that are necessary to implement this remedial alternative are readily available.</p> <p>A permit to construct and operate from the SCAQMD for the LTTD system will be required.</p> <p>Deeper excavation may be limited due to railroad tracks to the west and aboveground storage tanks to the east.</p> <p>Treated soil could be used as backfill, however the excavation could not remain open until treatment is complete. Therefore, the excavation would be backfilled with imported material and the treated soil would require offsite disposal after treatment.</p>
Off-Site Land Farming	<p>Will effectively remove VOC & BTEX by excavating impacted soil and transporting the soil offsite to an appropriate facility.</p> <p>When impacted soil is accepted by a treatment facility, the treatment facility is responsible for meeting their specified cleanup levels.</p>	<p>Equipment and materials necessary to implement this remedial alternative are readily available.</p> <p>An excavation permit for VOC handling will be required from the SCAQMD.</p> <p>Impacted soil must meet the acceptance criteria specified by the treatment facility.</p> <p>Excavation of deeper impacted soil will be limited due to the railroad tracks and aboveground storage tanks. Imported backfill will be required.</p>

TABLE 5
Evaluation Summary
Remedial Alternatives for Soil

Remedial Alternative	Effectiveness	Implementability
Ex-Situ Remedial Alternatives		
Off-Site Recycling	<p>Will effectively remove VOC & BTEX by excavating impacted soil and transporting the soil offsite to an appropriate facility.</p> <p>When impacted soil is accepted by a recycling facility, the recycling facility is responsible for producing a commercial grade asphalt product from the impacted soil.</p>	<p>Equipment and materials necessary to implement this remedial alternative are readily available.</p> <p>An excavation permit for VOC handling will be required from the SCAQMD.</p> <p>Impacted soil must meet the acceptance criteria specified by the recycling facility.</p> <p>Excavation of deeper impacted soil will be limited due to the railroad tracks and aboveground storage tanks. Imported backfill will be required.</p>
Off-Site LTTD	<p>Effective at removal of VOCs & BTEX in high permeability soil.</p> <p>Less effective in low permeability soil, such as clay, and soil with a high moisture content.</p>	<p>Equipment and materials necessary to implement this remedial alternative are readily available.</p> <p>An excavation permit for VOC handling will be required from the SCAQMD.</p> <p>Impacted soil must meet the acceptance criteria specified by the LTTD facility.</p> <p>Excavation of deeper impacted soil will be limited due to the railroad tracks and aboveground storage tanks. Imported backfill will be required.</p>
Off-Site Disposal	<p>Will effectively remove VOC & BTEX by excavating impacted soil and transporting the soil offsite to an appropriate facility.</p> <p>Impacted soil is landfilled and chemical constituents are not destroyed, as a result, long term liability is not reduced.</p>	<p>Equipment and materials necessary to implement this remedial alternative are readily available.</p> <p>An excavation permit for VOC handling will be required from the SCAQMD.</p> <p>Impacted soil must meet the acceptance criteria for the landfill facility.</p> <p>Excavation of deeper impacted soil will be limited due to the railroad tracks and aboveground storage tanks. Imported backfill will be required.</p>

TABLE 4
AVERAGE GROUNDWATER CONCENTRATION
(January 1997 - April 2000)

Monitoring Well	Total Xylene (ug/L)	Toluene (ug/L)	Ethylbenzene (ug/L)	Benzene (ug/L)	MBAS (mg/L)	1,1 DCA (ug/L)	1,1 DCE (ug/L)	PCE (ug/L)	Carbon Tetrachloride (ug/L)	Chloroform (ug/L)	1,2 DCA (ug/L)	TCE (ug/L)
Primary MCL	1,750	150	700	1	none	5	6	5	0.5	none	0.5	5
MW-1	182,338	73,412	31,200	60 ⁽³⁾	71.48	ND ⁽¹⁾	ND	ND	ND	108 ⁽²⁾	2,216	ND
MW-2	47,165	94,962	9,095	ND	16.12	ND	ND	ND	ND	ND	2,902	ND
MW-3	13,179	9,814	4,974	3.3 ⁽²⁾	5.46	ND	ND	ND	3.40 ⁽²⁾	3.02 ⁽²⁾	71.5 ⁽²⁾	ND
MW-4	74.86	35.62 ⁽²⁾	59.65	ND	0.32 ⁽²⁾	ND	ND	1.05 ⁽²⁾	0.29 ⁽²⁾	0.29 ⁽²⁾	15.76	2.26 ⁽²⁾
MW-5	13.19 ⁽²⁾	1.35 ⁽²⁾	1.8 ⁽²⁾	ND	2.23	ND	ND	5.1 ⁽²⁾	643	241	ND	1.38 ⁽²⁾
MW-6	3.06 ⁽²⁾	0.29 ⁽²⁾	0.52 ⁽²⁾	0.30 ⁽²⁾	2.21	ND	ND	1.65 ⁽²⁾	127	120	20.41 ⁽²⁾	1.64 ⁽²⁾
MW-7	20.50 ⁽²⁾	1.13 ⁽²⁾	2.6 ⁽²⁾	0.48 ⁽²⁾	1.89	ND	ND	0.71 ⁽²⁾	10.89	13.61	142	1.92 ⁽²⁾
MW-8	3,730 ⁽²⁾	176 ⁽²⁾	1,392	4.75 ⁽²⁾	1.36	ND	ND	18.2 ⁽²⁾	34.61 ⁽²⁾	22.31 ⁽²⁾	10.64 ⁽²⁾	0.96 ⁽²⁾
MW-9	11.32 ⁽²⁾	2.9 ⁽²⁾	3.21 ⁽²⁾	0.33 ⁽²⁾	0.98	40.51	10.07 ⁽²⁾	2.62 ⁽²⁾	ND	6.04	28.25	374
MW-10	2,008	619 ⁽²⁾	5,423	26.38 ⁽²⁾	17.5 ⁽⁴⁾	ND	ND	ND	ND	50.13 ⁽²⁾	3,694	ND
MW-11	0.72 ⁽²⁾	ND	ND	ND	9.11	ND ⁽⁵⁾	ND	3.76	ND	ND	21.39 ⁽²⁾	3.90 ⁽²⁾

(1) ND = Not detected above laboratory detection limit

(2) Detected values and half the lowest detection limit used to calculate average concentration

(3) ND's not used to calculate average concentration

(4) November 1998 MBAS result currently considered an anomaly and not used to calculate average concentration

(5) April 2000 1,1 DCA result currently considered an anomaly and not used to calculate average concentration

TABLE 3
HISTORICAL GROUNDWATER ANALYTICAL RESULTS
PILOT CHEMICAL COMPANY
SANTA FE SPRINGS, CALIFORNIA

Monitoring Well	Date	TPH (mg/L)	pH units	MBAS (mg/L)	1,1-DCA (ug/L)	1,1-DCE (ug/L)	PCE (ug/L)	Carbon Tetrachloride (ug/L)	Chloroform (ug/L)	1,2 DCA (ug/L)	TCE (ug/L)	Benzene (ug/L)	Ethylbenzene (ug/L)	Toluene (ug/L)	Total Xylenes (ug/L)
MW-1	Apr-91		7.39	0.80				NA ¹	NA	NA	NA	ND ² (2,500) ³	3,600	18,000	12,000
	Jan-94		7.0	0.90				ND (500)	ND (500)	ND (500)	ND (500)	ND (500)	9,700	52,000	59,000
	Apr-94		7.5	6.0	ND (25)		ND (25)	ND (25)	68	910	ND (25)	ND (5,000)	29,000	220,000	130,000
	Jul-94		7.2	7.5	ND (20)		ND (20)	28	48	870	ND (20)	ND (5,000)	9,300	26,000	40,000
	Nov-94		NA	NA	NA		NA	NA	NA	NA	NA	NA	NA	NA	NA
	Jun-95	NA	NA	NA	NA		NA	NA	NA	NA	NA	NA	NA	NA	NA
	Sep-95	15.0	7.0	60	ND (250)	ND (250)	ND (250)	ND (250)	ND (250)	4,200	ND (250)	ND (250)	48,000	56,000	319,000
	Dec-95	7.2	7.2	170	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	2,600	ND (50)	ND (5,000)	40,000	55,000	224,000
	Mar-96	16.0	7.1	29	ND (250)	ND (250)	ND (250)	ND (250)	ND (250)	3,200	ND (250)	ND (5,000)	58,000	85,000	282,000
	Jan-97	15.0	6.95	72	ND (50)	ND (50)	ND (50)	ND (50)	51	3,700	ND (50)	ND (5,000)	34,000	96,000	200,000
	Apr-97	19.0	7.11	25	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	3,300	ND (50)	ND (5,000)	48,000	73,000	310,000
	Oct-97	6.5	6.85	33	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	3,700	ND (50)	52	23,000	65,000	110,000
	May-98	7.9	7.01	18	ND (250)	ND (250)	ND (250)	ND (250)	ND (250)	2,200	ND (250)	ND (250)	35,000	110,000	200,000
	Nov-98	ND (1.0)	7.1	400	ND (250)	ND (250)	ND (250)	ND (250)	ND (250)	2,700	ND (250)	ND (250)	47,000	44,000	340,000
	Aug-99	ND(0.5)	7.25	11.9	ND (25)	ND (25)	ND (25)	ND (25)	ND (25)	760	ND (25)	68	20,200	57,000	85,300
	Dec-99	ND(0.5)	7.00	5.72	ND (250)	ND (250)	ND (250)	ND (250)	ND (250)	700	ND (250)	ND (250)	19,800	71,000	96,900
	Apr-00	ND(0.5)	7.21	6.22	ND (500)	ND (500)	ND (500)	ND (500)	736.0	670	ND (500)	ND (500)	22,600	71,300	116,500
MW-2	Apr-91		7.29	0.20				NA	NA	NA	NA	ND (500)	970	7,500	4,000
	Jan-94		7.3	1.50				ND (130)	ND (130)	ND (130)	ND (130)	ND (130)	590	1,700	3,500
	Apr-94		7.7	1.20	ND (5)		ND (5)	ND (5)	ND (5)	400 ⁴	ND (5)	ND (500)	12,000	29,000	47,600
	Jul-94		7.7	11	ND (20)		ND (20)	ND (20)	360	ND (20)	ND (20)	ND (250)	13,000	12,000	20,600
	Nov-94		6.7	0.68	ND (1,330)		ND (1,330)	ND (1,330)	ND (1,330)	1,600	ND (1,330)	ND (1,300)	9,300	73,000	44,000
	Jun-95	ND (0.5)	7.2	6.70	ND (50)		ND (50)	ND (50)	1,800	ND (50)	ND (50)	ND (5,000)	3,700	61,000	27,800
	Sep-95	0.70	7.1	11	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	2,300	ND (500)	ND (50)	2,300	29,000	12,600
	Dec-95	0.77	7.2	11	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	1,600	ND (50)	ND (500)	9,200	86,000	41,700
	Mar-96	ND (0.5)	7.3	8.20	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	1,300	ND (50)	ND (500)	6,200	41,000	22,400
	Jan-97	1.3	6.82	69	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	4,400	ND (50)	ND (5,000)	14,000	140,000	81,000
	Apr-97	1.9	6.94	1.90	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	3,900	ND (50)	ND (5,000)	13,000	140,000	87,000
	Oct-97	0.94	6.70	0.53	ND (500)	ND (500)	ND (500)	ND (500)	ND (500)	5,500	ND (500)	ND (500)	15,000	180,000	63,000
	May-98	0.43	7.03	1.10	ND (500)	ND (500)	ND (500)	ND (500)	ND (500)	1,600	ND (500)	ND (500)	6,100	120,000	30,000
	Nov-98	1.0	7.2	38	ND (250)	ND (250)	ND (250)	ND (250)	ND (250)	1,900	ND (250)	ND (250)	8,500	62,000	44,000
	Aug-99	ND (0.5)	6.97	13.8	ND (25)	ND (25)	ND (25)	ND (25)	ND (25)	2,500	ND (25)	ND (25)	6,600	46,500	28,700
	Dec-99	ND (0.5)	7.10	1.75	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	1,970	ND (50)	ND (50)	5,260	39,300	23,800
	Apr-00	ND (0.5)	7.14	2.79	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	1,450	ND (50)	ND (50)	4,300	31,900	19,820

TABLE 3
HISTORICAL GROUNDWATER ANALYTICAL RESULTS
PILOT CHEMICAL COMPANY
SANTA FE SPRINGS, CALIFORNIA

Monitoring Well	Date	TPH (mg/L)	pH units	MBAS (mg/L)	1,1-DCA (ug/L)	1,1-DCE (ug/L)	PCE (ug/L)	Carbon Tetrachloride (ug/L)	Chloroform (ug/L)	1,2 DCA (ug/L)	TCE (ug/L)	Benzene (ug/L)	Ethylbenzene (ug/L)	Toluene (ug/L)	Total Xylenes (ug/L)
MW-3	Apr-91		7.17	2.00				NA	NA	NA	NA	ND (13,000)	14,000	110,000	52,000
	Jan-94		6.9	1.10				ND (500)	ND (500)	ND (500)	ND (500)	ND (500)	15,000	24,000	68,000
	Apr-94		7.4	6.60	ND (5)		ND (5)	9.2	5.1	16	ND (5)	ND (500)	14,000	21,000	25,500
	Jul-94		7.0	10	ND (20)		ND (20)	ND (20)	ND (20)	ND (20)	ND (20)	ND (100)	6,500	2,800	2,360
	Nov-94		6.7	0.46	ND (250)		ND (250)	ND (250)	ND (250)	ND (250)	ND (250)	ND (250)	11,000	12,000	8,900
	Jun-95	ND(0.5)	7.0	5	ND (0.5)		ND (0.5)	ND (0.5)	ND (0.5)	19	ND (0.5)	ND (500)	7,800	7,400	6,900
	Sep-95	0.65	6.9	11	ND (5)	ND (5)	ND (5)	15	ND (5)	52	ND (5)	8.2	7,200	1,200	15,500
	Dec-95 ⁵	0.88	7.1	5	ND (5)	ND (5)	ND (5)	28	13	220	ND (5)	ND (500)	3,900	47,000	44,900
	Mar-96	0.93	7.2	9.20	ND (5)	ND (5)	8.7	14	7.8	26	ND (5)	ND (500)	10,000	21,000	29,800
	Jan-97	0.76	7.03	14	ND (5)	ND (5)	ND (5)	7.0	6.4	25.0	ND (5)	ND (500)	11,000	12,000	32,000
	Apr-97	1.70	6.85	9	ND (0.5)	ND (0.5)	ND (0.5)	5.1	2.4	38.0	1.2	8.7	5,500	2,800	5,600
	Oct-97	0.34	6.86	6.90	ND (13)	ND (13)	ND (13)	ND (13)	ND (13)	130	ND (13)	ND (13)	6,800	4,400	5,000
	May-98	ND (0.5)	7.23	1.50	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	460	1,100	1,800
	Nov-98	0.68	7.20	4.10	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	77	ND (50)	ND (50)	4,600	15,000	20,000
	Aug-99	ND (0.5)	7.26	3.30	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	52	ND (5)	ND (5)	2,730	5,210	9,480
	Dec-99	ND (0.5)	7.30	2.11	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	70	ND (50)	ND (50)	3,100	12,200	10,720
	Apr-00	ND (0.5)	7.28	2.77	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	155	ND (50)	ND (50)	5,600	25,800	20,830
MW-4	Apr-91		NA	NA				NA	NA	NA	NA	NA	NA	NA	NA
	Jan-94		7.2	ND (0.5)				ND (0.5)	ND (0.5)	ND (0.5)	1.4	ND (0.5)	7.5	29	31
	Apr-94		7.5	0.058	ND (0.5)		ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	2.5	ND (5)	37	210	116
	Jul-94		7.3	1.60	ND (0.5)		1.0	ND (0.5)	ND (0.5)	ND (0.5)	5.4	ND (0.5)	13	52	33
	Nov-94		6.8	0.10	ND (5)		ND (5)	ND (5)	ND (5)	6.8	ND (5)	ND (5)	83	200	180
	Jun-95	ND(0.5)	7.3	0.04	ND(0.5)		0.91	ND (0.5)	ND (0.5)	2.7	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
	Sep-95	0.58	7.0	0.66	0.82	ND (0.5)	0.98	ND (0.5)	ND (0.5)	2.1	3.1	6.0	66	180	154
	Dec-95	0.82	7.2	2.10	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	76	6.2	ND (500)	9,200	19,000	38,100
	Mar-96 ⁷	ND (0.5)	7.4	0.21	ND (0.5)	ND (0.5)	4.8	1.20	ND (0.5)	11	1.2	ND (0.5)	54 ⁴	110 ⁴	196 ⁴
	Jan-97	ND (0.5)	6.95	ND (.10)	0.52	ND (0.5)	1.2	ND (0.5)	ND (0.5)	27	2.3	ND (5)	49	51	330
	Apr-97	ND (0.05)	7.02	0.28	ND (0.5)	ND (0.5)	1.3	ND (0.5)	ND (0.5)	17	3.0	ND (0.5)	8.7	4.8	10
	Oct-97	ND (0.05)	6.6	0.15	ND (0.5)	ND (0.5)	1.3	ND (0.5)	ND (0.5)	21	3.1	ND (0.5)	28	19	26
	May-98	ND (0.05)	7.48	0.33	ND (0.5)	ND (0.5)	1.7	ND (0.5)	ND (0.5)	14	3.1	ND (0.5)	5.5	1.4	5.8
	Nov-98	ND (0.05)	7.4	0.27	ND (0.5)	ND (0.5)	1.4	0.78	0.56	8.4	2.2	ND (0.5)	270	49	93
	Aug-99	ND (0.5)	7.34	0.30	ND (0.5)	ND (0.5)	1.0	ND (0.5)	ND (0.5)	16.6	1.9	ND (0.5)	93.8	117	83.6
	Dec-99	ND (0.5)	7.41	0.23	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	10.9	2.2	ND (0.5)	6.9	ND (0.5)	3.5
	Apr-00	ND (0.5)	7.41	0.26	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	11.2	ND (0.5)	ND (0.5)	15.3	43	47

TABLE 3
HISTORICAL GROUNDWATER ANALYTICAL RESULTS
PILOT CHEMICAL COMPANY
SANTA FE SPRINGS, CALIFORNIA

Monitoring Well	Date	TPH (mg/L)	pH units	MBAS (mg/L)	1,1-DCA (ug/L)	1,1-DCE (ug/L)	PCE (ug/L)	Carbon Tetrachloride (ug/L)	Chloroform (ug/L)	1,2 DCA (ug/L)	TCE (ug/L)	Benzene (ug/L)	Ethylbenzene (ug/L)	Toluene (ug/L)	Total Xylenes (ug/L)
MW-5	Apr-91		7.28	0.2				NA	NA	NA	NA	3.2	ND (0.5)	1.2	ND (1)
	Jan-94		7.3	1.5				660	120	ND (10)	ND (10)	ND (10)	ND (10)	18	44
	Apr-94		7.6	0.57	ND (2.5)		ND (2.5)	470 ⁴	120	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)
	Jul-94		7.5	4.10	ND (5)		ND (5)	370 ⁴	98	88	ND (5)	ND (5)	110	370 ⁴	286
	Nov-94		7.3	0.95	ND (25)		ND (25)	900	320	26	ND (25)	ND (25)	ND (25)	35	ND (75)
	Jun-95	ND(0.5)	7.5	0.73	ND(5)		ND(5)	460 ⁴	230	ND (5)	ND (5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
	Sep-95 ⁶	ND(0.5)	7.4	1.7	ND (5)	ND (5)	ND (5)	520	280	ND (5)	ND (5)	ND (0.5)	14	61	50.5
	Dec-95	ND(0.5)	7.6	1.9	ND (500)	ND (500)	ND (500)	ND (500)	ND (500)	ND (500)	ND (500)	ND (500)	ND (500)	ND (500)	ND (500)
	Mar-96	ND (0.5)	7.7	1.4	ND (5)	ND (5)	ND (5)	340	160	ND (5)	ND (5)	ND (0.5)	3.5	3.6	16.5
	Jan-97	ND (0.5)	7.4	5	ND (5)	ND (5)	ND (5)	750	310	ND (5)	ND (5)	ND (0.5)	12	5.9	79
	Apr-97	0.29	7.38	4.8	ND (5)	ND (5)	ND (5)	930	330	ND (5)	ND (5)	ND (0.5)	ND (0.5)	2.8	4.6
	Oct-97 ¹⁰	0.56	7.2	1.1	ND (2.5)	ND (2.5)	7.7	1,400	560	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (7.5)
	May-98	ND (0.5)	7.47	0.81	ND (0.5)	ND (0.5)	3.3	490	120	ND (0.5)	2.3	ND (0.5)	1.0	0.86	5.2
	Nov-98	ND (0.5)	7.5	1.4	ND (0.5)	ND (0.5)	3.1	390	130	ND (0.5)	1.2	ND (0.5)	ND (0.5)	ND (0.5)	1.7
	Aug-99	ND (0.5)	7.34	2.37	ND (5)	ND (5)	ND (5)	483	218	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (10)
	Dec-99	ND (0.5)	7.37	1.36	ND (5)	ND (5)	ND (5)	385	137	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (10)
	Apr-00	ND (0.5)	7.40	1.00	ND (5)	ND (5)	17.00	316	126	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (10)
MW-6	Apr-91		7.27	ND (0.1)				NA	NA	NA	NA	0.61	ND (0.5)	ND (0.5)	ND (1)
	Jan-94		7.4	1.1				49	25	7.1	ND (1.3)	ND (1.3)	ND (1.3)	ND (1.3)	ND (3.8)
	Apr-94		7.6	1.4	ND (0.5)		0.74	39 ⁴	25 ⁴	ND (0.5)	1.4 ⁴	ND (0.5)	0.67	ND (0.5)	0.6
	Jul-94		7.6	0.7	ND (0.5)		0.65	38 ⁴	28	ND (0.5)	1.5	ND (0.5)	21	42 ⁴	50 ⁴
	Nov-94		7.5	1.4	ND (1.0)		ND (1.0)	38	21	7.9	1.0	ND (1.0)	6.7	30	22
	Jun-95	ND(0.5)	7.5	0.48	ND(5)		ND(5)	110	36	ND (5)	ND (5)	ND (0.5)	ND (0.5)	ND (0.5)	0.72
	Sep-95	ND(0.5)	7.5	1	ND (5)	ND (5)	ND (5)	150	66	13	ND (5)	ND (0.5)	26	89	17
	Dec-95	ND(0.5)	7.6	2.7	ND (500)	ND (500)	ND (500)	ND (500)	ND (500)	ND (500)	ND (500)	ND (500)	ND (500)	ND (500)	ND (500)
	Mar-96 ⁸	ND (0.5)	7.6	2.2	ND (0.5)	ND (0.5)	3.50	270	120	24	0.88	ND (0.5)	3.6	4.2	16.6
	Jan-97	ND (0.5)	7.56	2.5	ND (5)	ND (5)	ND (5)	81	99	14	ND (5)	ND (0.5)	ND (0.5)	ND (0.5)	4.1
	Apr-97	0.61	7.49	0.54	ND (5)	ND (5)	ND (5)	91	130	20	ND (5)	ND (0.5)	ND (0.5)	ND (0.5)	6.7
	Oct-97 ¹¹	0.21	7.03	3.1	ND (0.5)	ND (0.5)	1.3	55	210	33	0.65	ND (0.5)	ND (0.5)	ND (0.5)	3.4
	May-98 ¹²	0.17	7.43	0.81	ND (0.5)	ND (0.5)	2.3	130	47	ND (0.5)	4.5	ND (0.5)	2.4	0.6	8.3
	Nov-98	0.45	7.4	2	ND (0.5)	ND (0.5)	2.6	81	79	21	1.7	0.65	ND (0.5)	ND (0.5)	ND (1.5)
	Aug-99	ND (0.5)	7.21	4.46	ND (2.5)	ND (2.5)	ND (2.5)	183	143	36	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (5)
	Dec-99	ND (0.5)	7.31	1.57	ND (5)	ND (5)	ND (5)	291	177	23	ND (5)	ND (5)	ND (5)	ND (5)	ND (10)
	Apr-00	ND (0.5)	7.36	2.67	ND (0.5)	ND (0.5)	2.00	105	76	15.9	1.30	ND (0.5)	ND (0.5)	ND (0.5)	ND (1.0)

TABLE 3
HISTORICAL GROUNDWATER ANALYTICAL RESULTS
PILOT CHEMICAL COMPANY
SANTA FE SPRINGS, CALIFORNIA

Monitoring Well	Date	TPH (mg/L)	pH units	MBAS (mg/L)	1,1-DCA (ug/L)	1,1-DCE (ug/L)	PCE (ug/L)	Carbon Tetrachloride (ug/L)	Chloroform (ug/L)	1,2 DCA (ug/L)	TCE (ug/L)	Benzene (ug/L)	Ethylbenzene (ug/L)	Toluene (ug/L)	Total Xylenes (ug/L)
MW-7	Apr-91		7.44	ND (0.1)				NA	NA	NA	NA	ND (2)	4.7	6.1	ND (4)
	Jan-94		6.9	ND (0.5)				11	11	24	2.6	ND (0.5)	ND (0.5)	ND (0.5)	ND (1.5)
	Apr-94		7.5	0.53	ND (0.5)		ND (0.5)	8.9 ⁴	11	494	1.6	ND (0.5)	1.6	4.7	3.76
	Jul-94		7.4	1.2	ND (0.5)		ND (0.5)	7.4	6.6	54	1.6	ND (0.5)	9.2	22	27.5
	Nov-94		6.8	1.5	ND (25)		ND (25)	51	44	1,100	ND (25)	ND (25)	ND (25)	420	100
	Jun-95	ND (0.5)	7.4	0.17	ND (0.5)		ND (0.5)	4.6	6.6	68 ⁴	ND (0.5)	ND (5)	200	230	520
	Sep-95	ND (0.5)	7.4	0.5	ND (0.5)	ND (0.5)	0.61	8.8	8.8	65	2.6	ND (0.5)	30	26	32.2
	Dec-95	ND (0.5)	7.6	3.8	ND (5)	ND (5)	ND (5)	18	11	310	ND (5)	ND (5)	51	7.0	32
	Mar-96	ND (0.5)	7.6	2.1	ND (0.5)	ND (0.5)	3.3	1.9	18	110	0.97	0.8	26	90	119
	Jan-97	ND (0.5)	7.22	8.1	ND (5)	ND (5)	ND (5)	34	38	510	ND (5)	1.8	ND (0.5)	ND (0.5)	4.3
	Apr-97	0.25	7.67	2.5	ND (5)	ND (5)	ND (5)	13	14	240	ND (5)	ND (5)	18	6.9	150
	Oct-97	ND (0.05)	7.24	0.61	ND (0.5)	ND (0.5)	0.74	10	12	210	0.77	0.54	0.99	0.67	3.1
	May-98	ND (0.05)	7.46	0.54	ND (0.5)	ND (0.5)	1.5	6.6	7.6	26	2.5	ND (0.5)	ND (0.5)	ND (0.5)	ND (1.5)
	Nov-98	ND (0.05)	7.5	0.76	ND (0.5)	ND (0.5)	1.3	1.9	2.3	25	2.0	ND (0.5)	0.59	ND (0.5)	4.4
	Aug-99	ND (0.05)	7.41	0.47	ND (0.5)	ND (0.5)	ND (0.5)	6.1	6.7	24.8	1.0	ND (0.5)	ND (0.5)	ND (0.5)	ND (1.0)
	Dec-99	ND (0.5)	7.34	0.98	ND (0.5)	ND (0.5)	ND (0.5)	4.3	8.4	42.1	1.5	ND (0.5)	ND (0.5)	ND (0.5)	ND (1.0)
	Apr-00	ND (0.5)	7.35	1.18	ND (0.5)	ND (0.5)	1.1	11.2	19.9	60.3	2.6	ND (0.5)	ND (0.5)	ND (0.5)	ND (1.0)
MW-8	Apr-91		7.2	ND (0.1)				NA	NA	NA	NA	ND (50)	180	550	740
	Jan-94		7.4	0.5				ND (130)	ND (130)	ND (130)	ND (130)	ND (130)	3,400	12,000	21,000
	Apr-94		7.8	0.43	ND (5)		ND (5)	ND (5)	10	ND (5)	ND (5)	ND (250)	3,400	7,600	12,400
	Jul-94		7.9	1.3	ND (5)		ND (5)	27	21	22	3.0	39	2400 ⁴	2800 ⁴	10000 ⁴
	Nov-94		7.5	0.86	ND (1,000)		ND (1,000)	ND (1,000)	ND (1,000)	ND (1,000)	ND (1,000)	ND (1,000)	6,200	27,000	23,000
	Jun-95	ND (0.5)	7.5	0.3	ND (5)		ND (5)	ND (5)	25	ND (5)	ND (5)	ND (50)	400	160	5,900
	Sep-95	ND (0.5)	7.6	2.8	ND (5)	ND (5)	ND (5)	ND (5)	17	ND (5)	ND (5)	ND (500)	2,000	1,500	8,300
	Dec-95	ND (0.5)	7.9	1.8	ND (5)	ND (5)	ND (5)	22	51	7.5	ND (5)	ND (500)	ND (500)	ND (500)	7,800
	Mar-96	ND (0.5)	7.6	1	ND (0.5)	ND (0.5)	9.4	5.8	24	2.4	0.76	ND (5)	400	13	1,470
	Jan-97	0.65	7.41	0.88	ND (5)	ND (5)	ND (5)	ND (5)	11	ND (5)	ND (5)	ND (50)	2,300	ND (50)	3,600
	Apr-97	0.30	7.37	2.7	ND (1)	ND (1)	ND (1)	ND (1)	3.8	ND (1)	ND (1)	6.5	530	17	ND (750)
	Oct-97	ND (0.05)	7.19	0.12	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	4,800	290	14,000
	May-98	ND (0.05)	7.38	0.91	ND (0.5)	ND (0.5)	1.6	160	51	ND (0.5)	2.2	ND (0.5)	72	39	260
	Nov-98	6.5	7.9	1.9	ND (25)	ND (25)	ND (25)	ND (25)	ND (25)	ND (25)	ND (25)	30	2,700	160	7,300
	Aug-99	ND (0.5)	7.33	0.75	ND (2.5)	ND (2.5)	ND (2.5)	97	49	7.5	ND (2.5)	ND (2.5)	23	25	60
	Dec-99	ND (0.5)	7.40	3.02	ND (25)	ND (25)	140	ND (25)	ND (25)	65.0	ND (25)	ND (25)	695	775	4,180
	Apr-00	ND (0.5)	7.39	0.59	ND (0.5)	ND (0.5)	1.5	17.4	26.2	11.4	2.5	ND (0.5)	12.8	75.4	63

TABLE 3
HISTORICAL GROUNDWATER ANALYTICAL RESULTS
PILOT CHEMICAL COMPANY
SANTA FE SPRINGS, CALIFORNIA

Monitoring Well	Date	TPH (mg/L)	pH units	MBAS (mg/L)	1,1-DCA (ug/L)	1,1-DCE (ug/L)	PCE (ug/L)	Carbon Tetrachloride (ug/L)	Chloroform (ug/L)	1,2 DCA (ug/L)	TCE (ug/L)	Benzene (ug/L)	Ethylbenzene (ug/L)	Toluene (ug/L)	Total Xylenes (ug/L)
MW-9	Apr-91		7.54	0.1				NA	NA	NA	NA	4.8	2.7	2.3	33
	Jan-94		7.1	0.8				ND (10)	ND (10)	ND (10)	410	ND (10)	ND (10)	ND (10)	ND (30)
	Apr-94		7.6	ND (0.025)	2 ⁴		ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	73	ND (0.5)	0.69	ND (0.5)	ND (0.5)
	Jul-94		7.6	0.2	ND (5)		ND (5)	ND (5)	ND (5)	ND (5)	110	ND (5)	ND (5)	ND (5)	ND (5)
	Nov-94		7.1	ND (0.1)	6.2		ND (5)	ND (5)	ND (5)	ND (5)	220	ND (5)	150	33	150
	Jun-95	ND (0.5)	7.2	0.01	17	6.4	ND (5)	ND (5)	ND (5)	ND (5)	300	ND (0.5)	ND (0.5)	1.1	1.2
	Sep-95	ND (0.5)	7.2	0.55	54	14	ND (5)	8.1	6.5	ND (5)	650	0.68	20	59	67
	Dec-95	ND (0.5)	7.3	1.4	55	12	ND (5)	ND (5)	7.2	ND (5)	620	ND (5)	58	69	184
	Mar-96	ND (0.5)	7.3	2	29	6.2	ND (5)	ND (5)	ND (5)	78	470	ND (5)	41	18	218
	Jan-97	ND (0.5)	7.17	1.2	16	ND (5)	ND (5)	ND (5)	5.6	30	210	0.61	18	8.8	86
	Apr-97 ⁹	ND (0.05)	7.15	0.19	38	13	1.6	ND (0.5)	5.7	11	350	0.57	ND (0.5)	ND (0.5)	ND (1.5)
	Oct-97	ND (0.05)	6.9	0.39	52	14	ND (2.5)	ND (2.5)	6	6.6	600	ND (2.5)	ND (2.5)	ND (2.5)	ND (7.5)
	May-98	ND (0.05)	7.12	0.63	63	14	ND (2.5)	ND (2.5)	7.1	7.1	710	ND (2.5)	5.3	13	ND (7.5)
	Nov-98	0.43	7.2	4.1	35	7.8	ND (2.5)	ND (2.5)	6.8	100	280	ND (2.5)	ND (2.5)	ND (2.5)	ND (7.5)
	Aug-99 ⁹	ND (0.5)	7.21	0.91	24.7	9.3	0.9	ND (0.5)	3	26.3	190	ND (0.5)	1.2	ND (0.5)	1.6
	Dec-99 ¹⁵	ND (0.5)	7.26	0.23	33.4	8.0	0.5	ND (0.5)	4.1	24	200	ND (0.5)	ND (0.5)	ND (0.5)	ND (1.0)
	Apr-00	ND (0.5)	7.11	0.18	62	12.0	13	ND (5)	10	21	452	ND (5)	ND (5)	ND (5)	ND (10)
MW-10	Apr-91		7.44	1.2				NA	NA	NA	NA	ND (10)	27	35	170
	Jan-94		7.2	1.1				ND (50)	ND (50)	1,500	ND (50)	ND (50)	570	ND (50)	410
	Apr-94		7.4	3.9	ND (5)		ND (5)	ND (5)	8.1	660 ⁴	ND (5)	5.2	250	ND (5)	15
	Jul-94		7.3	14	ND (5)		ND (5)	ND (5)	20	2,100 ⁴	8.3	ND (250)	1,600	2,500	1,960
	Nov-94		7	1.1	ND (50)		ND (50)	ND (50)	ND (50)	3,900	ND (50)	ND (50)	3,400	220	2,400
	Jun-95	ND (0.5)	7.3	0.03	ND (50)		ND (50)	ND (50)	ND (50)	2,900	ND (50)	ND (50)	2,100	ND (50)	ND (50)
	Sep-95	0.92	7.1	5.3	ND (5)	ND (5)	ND (5)	9.1	35	5,600	8.6	51	4,400	130	678
	Dec-95	0.34	7.4	22	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	5,500	ND (50)	ND (500)	18,000	ND (500)	3,700
	Mar-96	0.55	7.4	15	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	2,200	ND (50)	ND (50)	1,500	ND (50)	130
	Jan-97	ND (0.5)	7.25	60	ND (250)	ND (250)	ND (250)	ND (250)	ND (250)	5,200	ND (250)	ND (250)	19,000	ND (250)	1,100
	Apr-97	0.38	7.4	4.4	ND (5)	ND (5)	ND (5)	ND (5)	20	1,300	ND (5)	12	640	12	57
	Oct-97	0.3	6.99	18	ND (25)	ND (25)	ND (25)	ND (25)	ND (25)	5,100	ND (25)	46	6,600	26	130
	May-98	0.3	7.26	1.7	ND (25)	ND (25)	ND (25)	ND (25)	ND (25)	2,600	ND (25)	43	3,200	820	2,100
	Nov-98	160	7.4	1,700	ND (25)	ND (25)	ND (25)	ND (25)	ND (25)	1,900	ND (25)	ND (25)	2,100	380	1,000
	Aug-99	ND (0.5)	7.32	17.3	ND (25)	ND (25)	ND (25)	ND (25)	ND (25)	2,170	ND (25)	ND (25)	2,750	525	2,450
	Dec-99	ND (0.5)	7.10	8.37	ND (25)	ND (25)	ND (25)	ND (25)	ND (25)	5,250	ND (25)	60	4,500	3,140	4,855
	Apr-00	ND (0.5)	7.26	12.7	ND (50)	ND (50)	ND (50)	ND (50)	76	6,030	ND (50)	ND (50)	4,590	ND (50)	4,368

TABLE 3
HISTORICAL GROUNDWATER ANALYTICAL RESULTS
PILOT CHEMICAL COMPANY
SANTA FE SPRINGS, CALIFORNIA

Monitoring Well	Date	TPH (mg/L)	pH units	MBAS (mg/L)	1,1-DCA (ug/L)	1,1-DCE (ug/L)	PCE (ug/L)	Carbon Tetrachloride (ug/L)	Chloroform (ug/L)	1,2 DCA (ug/L)	TCE (ug/L)	Benzene (ug/L)	Ethylbenzene (ug/L)	Toluene (ug/L)	Total Xylenes (ug/L)
MW-11	Apr-91		7.39	2.2				NA	NA	NA	NA	ND (0.5)	0.95	1	7.6
	Jan-94		7.1	1.4				ND (1.3)	ND (1.3)	35	3.3	ND (1.3)	ND (1.3)	ND (1.3)	ND (3.8)
	Apr-94		7.4	18	ND (0.5)		2.4	ND (0.5)	1.3	54 ⁴	5.1	1.2	4.7	0.69	1.5
	Jul-94		7.3	11	ND (10)		ND (10)	ND (10)	ND (10)	ND (10)	80	ND (10)	92	340	327
	Nov-94		6.9	1.7	ND (2.5)		ND (2.5)	2.6	ND (2.5)	100	5.3	9.6	4.1	10	7.5
	Jun-95	ND (0.5)	7.3	1	ND (5)		ND (5)	ND (5)	ND (5)	12	ND (5)	ND (0.5)	ND (0.5)	ND (0.5)	11
	Sep-95	ND (0.5)	7.1	8.3	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	83	ND (50)	ND (5)	110	530	353
	Dec-95	0.68	7.2	23	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	90	ND (5)	ND (5)	18	ND (5)	21
	Mar-96	0.8	7.2	24	ND (5)	ND (5)	6.9	ND (5)	ND (5)	73	ND (5)	ND (5)	47	25	83
	Jan-97	0.62	7.14	9.8	ND (5)	ND (5)	5.2	ND (5)	ND (5)	38	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)
	Apr-97	0.52	7.13	7.9	ND (1)	ND (1)	3.6	ND (1)	ND (1)	30	3.3	ND (0.5)	ND (0.5)	ND (0.5)	ND (1.5)
	Oct-97	ND (0.05)	6.82	9.7	ND (0.5)	ND (0.5)	4.3	ND (0.5)	ND (0.5)	28	5.2	ND (0.5)	ND (0.5)	ND (0.5)	ND (1.5)
	May-98 ¹³	ND (0.05)	6.95	7.9	ND (0.5)	ND (0.5)	4	ND (0.5)	ND (0.5)	ND (0.5)	3.9	ND (0.5)	ND (0.5)	ND (0.5)	ND (1.5)
	Nov-98	ND (0.05)	7.1	21	ND (0.5)	ND (0.5)	3.9	ND (0.5)	ND (0.5)	27	5.2	ND (0.5)	ND (0.5)	ND (0.5)	ND (1.5)
	Aug-99	ND (0.5)	6.97	11.4	ND (0.5)	ND (0.5)	2.7	ND (0.5)	ND (0.5)	20.2	4.2	3.8	ND (0.5)	ND (0.5)	2.3
	Dec-99	ND (0.5)	7.07	3.77	ND (0.5)	ND (0.5)	2.4	ND (0.5)	ND (0.5)	27.4	3.6	ND (0.5)	ND (0.5)	ND (0.5)	ND (1.0)
	Apr-00	ND (0.5)	7.13	1.43	26	ND (0.5)	4	ND (0.5)	0.5	ND (0.5)	3.3	ND (0.5)	ND (0.5)	ND (0.5)	ND (1.0)
DUP-1(MW-7)	Apr-97	NA	NA	NA	ND (2.5)	ND (2.5)	ND (2.5)	13	12	200	ND (2.5)	ND (2.5)	22	8.3	150
DUP-2(MW-3)	Apr-97	NA	NA	NA	ND (0.5)	ND (0.5)	1.2	ND (0.5)	ND (0.5)	16	3.1	ND (0.5)	8.5	4.6	9.6
DUP-(MW-4)	Oct-97	NA	NA	NA	ND (0.5)	ND (0.5)	1.3	ND (0.5)	ND (0.5)	23	3.3	ND (0.5)	32	20	29
DUP-(MW-7)	Oct-97	NA	NA	NA	ND (0.5)	ND (0.5)	0.64	8.5	12	210	0.68	0.54	1.1	0.86	3.7
MW-98 ¹⁴	Nov-98	NA	NA	NA	ND (250)	ND (250)	ND (250)	ND (250)	ND (250)	3,300	ND (250)	ND (250)	7,100	130,000	47,000
MW-99 ¹⁵	Nov-98	NA	NA	NA	5.6	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	240	47	95
DUP-1(MW-3)	Aug-99	NA	NA	NA	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	70	ND (5)	ND (5)	3,450	6,800	11,600
DUP-2(MW-6)	Aug-99	NA	NA	NA	ND (5)	ND (5)	ND (5)	201	145	35	ND (5)	ND (5)	ND (5)	ND (5)	ND (10)
DUP-1(MW-7)	Dec-99	NA	NA	NA	ND (0.5)	ND (0.5)	ND (0.5)	4.1	8.1	40.7	1.5	ND (0.5)	ND (0.5)	ND (0.5)	ND (1.0)
DUP-2(MW-1)	Dec-99	NA	NA	NA	ND (250)	ND (250)	ND (250)	ND (250)	ND (250)	1,500	ND (250)	ND (250)	32,800	122,000	160,000
DUP-1(MW-9)	Apr-00	NA	NA	NA	64	11	13	ND (5.0)	10	20	488	ND (5.0)	ND (5.0)	ND (5.0)	ND (10)
DUP-2(MW-11)	Apr-00	NA	NA	NA	19.3	ND (0.5)	2.8	ND (0.5)	ND (0.5)	ND (0.5)	2.4	ND (0.5)	ND (0.5)	ND (0.5)	ND (1.0)

Notes:

¹NA = Not Analyzed

²ND = Not Detected above laboratory limit

()³ = Detection Limit

⁴Estimated concentration

⁵Chlorobenzene detected at 16,000 ppb

⁶Bromodichloromethane and 1,1,2,2-Tetrachloroethane detected at 12 ppb and 11 ppb, respectively

⁷Freon 113 detected at 3.1 ppb

⁸Methylene Chloride detected at 10 ppb

⁹cis-1,2 DCE detected at 1.0 ppb (Apr-97) and 1.6 ppb (Aug-99)

¹⁰Methylene Chloride detected at 29 ppb

¹¹Methylene Chloride detected at 17 ppb

¹²Methylene Chloride detected at 7.5 ppb

¹³cis-1,2 DCE detected at 23 ppb

¹⁴Duplicate of MW-2

¹⁵Duplicate of MW-4

¹⁶cis-1,2 DCE detected at 1.5 ppb (Dec-99)

Table 2

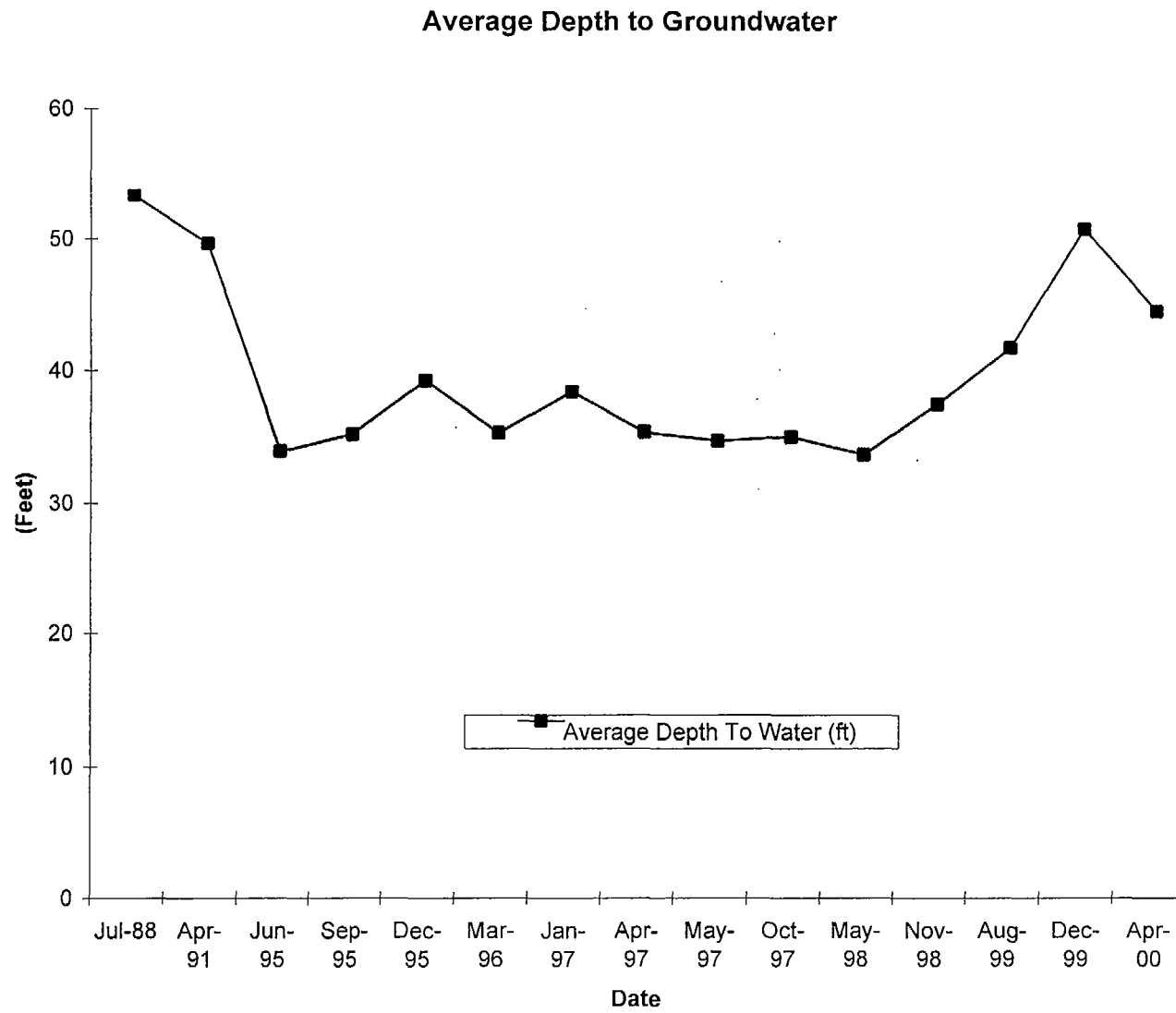


TABLE 1
SOIL SAMPLE RESULTS
Pilot Chemical Company

Units: mg/kg

Soil Sample Location	Depth (ft)	1,2 DCA	Benzene	E. Benzene	Xylenes	Toluene
SB-1	60	NA	(<0.04)	(<0.04)	(<0.03)	0.06
SB-3	60	NA	(<0.04)	0.57	2.7	4.2
SB-4	60	NA	(<0.04)	100	480	220
MW-5	10	NA	(<0.005)	(<0.005)	(<0.010)	(<0.005)
	20	NA	(<0.005)	(<0.005)	(<0.010)	0.008
	30	NA	(<0.005)	(<0.005)	(<0.010)	(<0.005)
	40	NA	(<0.005)	(<0.005)	(<0.010)	(<0.005)
	50	NA	(<0.005)	(<0.005)	(<0.010)	(<0.005)
MW-6	10	NA	(<0.005)	(<0.005)	(<0.010)	(<0.005)
	20	NA	(<0.005)	(<0.005)	(<0.005)	0.01
	30	NA	(<0.005)	(<0.005)	(<0.005)	0.013
	40	NA	(<0.005)	(<0.005)	0.015	0.009
	50	NA	(<0.005)	(<0.005)	(<0.005)	0.01
MW-7	10	NA	(<0.005)	1.8	10	1.1
	20	NA	(<0.005)	(<0.005)	0.043	0.043
	30	NA	(<0.005)	0.05	0.213	0.102
	40	NA	(<0.005)	2.2	8.3	6
	50	NA	(<0.005)	0.008	0.03	0.014
MW-8	10	NA	(<0.005)	(<0.005)	(<0.01)	0.01
	20	NA	(<0.005)	(<0.005)	0.011	0.011
	30	NA	(<0.005)	0.013	0.06	0.026
	40	NA	(<0.63)	33	86	63
	50	NA	(<0.63)	300	1,000	400
MW-9	10	NA	(<0.005)	(<0.005)	(<0.01)	0.009
	20	NA	(<0.005)	(<0.005)	(<0.01)	0.01
	30	NA	(<0.005)	(<0.005)	(<0.01)	0.01
	40	NA	(<0.005)	(<0.005)	(<0.01)	0.01
	50	NA	(<0.005)	(<0.005)	0.02	0.01
MW-10	10	NA	(<0.005)	0.057	0.24	0.688
	20	NA	(<0.005)	0.007	0.03	0.043
	30	NA	(<0.005)	0.007	0.03	0.032
	40	NA	(<0.005)	0.042	0.19	0.352
	50	NA	(<1.3)	1.4	5.4	13.9
MW-11	10	NA	(<0.005)	(<0.005)	(<0.01)	(<0.005)
	20	NA	(<0.005)	(<0.005)	(<0.01)	0.0072
	30	NA	(<0.005)	(<0.005)	(<0.01)	(<0.005)
	40	NA	(<0.005)	(<0.005)	(<0.01)	(<0.005)
	50	NA	(<0.005)	(<0.005)	(<0.01)	(<0.005)

TABLE 1
SOIL SAMPLE RESULTS
Pilot Chemical Comapny

Units: mg/kg

Soil Sample Location	Depth (ft)	1,2 DCA	Benzene	E. Benzene	Xylenes	Toluene
B1	2	0.828	0.1	30	80	50
	5	(<0.01)	0.02	0.67	4.8	0.67
	10	(<0.01)	(<0.005)	200	1,220	250
B2	2	NA	0.3	100	280	265
	5	NA	(<0.005)	20	95	16
	9.3	NA	(<0.005)	3,400	15,200	3,720
B3	2	NA	(<0.005)	(<0.005)	(<0.015)	(<0.005)
	5	NA	(<0.005)	(<0.005)	(<0.015)	(<0.005)
	7.8	NA	0.07	0.37	2.5	1.3
B6	2	40.39	(<0.005)	2.5	1	1.1
	5	1.14	(<0.005)	30	90	5
	10	NA	(<0.005)	3,610	10,900	1,110
SB-5	6	NA	(<0.10)	0.15	0.92	2.6
	16	NA	(<0.10)	0.042	0.44	0.12
	26	(<0.01)	(<0.10)	0.0024	0.175	0.064
	36	(<0.01)	(<0.10)	2.2	12.7	5.3
	41	NA	(<5.0)	25	126	48
	51	NA	(<50)	240	1,220	430
SB-6	6	NA	(<0.50)	0.58	4.79	6.2
	16	NA	(<0.10)	0.32	2.67	1.6
	21	NA	(<0.10)	0.58	3.87	1.7
	36	NA	(<1,000)	780	5500	1,400
	46	NA	(<1.0)	1.8	8.2	12
	56	NA	(<1,000)	1,700	12,000	3,800
SB-7	6	NA	(<1.0)	4.9	64	(<1.0)
	16	NA	(<0.05)	0.061	0.466	0.068
	26	NA	0.14	0.11	0.82	0.24
	31	NA	(<5.0)	10	64.2	6.8
	41	NA	(<1,000)	2,600	9,200	10,000
	51	NA	(<100)	140	852	180
SB-8	11	NA	(<0.010)	0.017	0.15	0.024
	16	NA	(<0.010)	0.085	0.483	0.12
	26	NA	(<0.5)	0.64	3.61	1.4
	36	NA	(<0.5)	1.7	5.8	6.6
	41	NA	(<1,000)	1,700	5,380	3,300
	51	NA	(<50)	360	1,180	640
SB-9	10.5	NA	(<0.005)	(<0.005)	(<0.005)	(<0.005)
	20.5	NA	(<0.005)	(<0.005)	(<0.005)	(<0.005)
	30.5	NA	(<0.005)	(<0.005)	(<0.005)	(<0.005)
	40.5	NA	(<0.005)	(<0.005)	(<0.005)	(<0.005)
	50.5	NA	(<0.005)	(<0.005)	(<0.005)	(<0.005)
SB-10	11.5	NA	(<0.005)	(<0.005)	(<0.005)	(<0.005)
	21	NA	(<0.005)	(<0.005)	(<0.005)	(<0.005)
	30.5	NA	(<0.005)	(<0.005)	(<0.005)	(<0.005)
	39.5	NA	(<0.005)	(<0.005)	(<0.005)	(<0.005)
	50.5	NA	(<0.02)	160	810	390

TABLE 1
SOIL SAMPLE RESULTS
Pilot Chemical Comapny

Units: mg/kg

Soil Sample Location	Depth (ft)	1,2 DCA	Benzene	E. Benzene	Xylenes	Toluene
SB-11	11	NA	0.007	(<0.005)	(<0.005)	(<0.005)
	21	NA	(<0.005)	(<0.005)	(<0.005)	(<0.005)
	30	NA	(<0.005)	(<0.005)	(<0.005)	(<0.005)
	40.5	NA	(<0.005)	0.19	0.1	(<0.005)
	50	NA	(<0.005)	0.19	0.63	0.64
EW-3	6	NA	(<0.01)	0.01	(<0.03)	(<0.01)
	16	NA	(<1,000)	900	6,820	3,100
	26	NA	(<5.0)	59	316	77
	36	NA	(<50)	420	2,780	2,900
	46	NA	(<5.0)	73	264	160
	56	NA	(<0.10)	0.8	3.97	7.6
EW-4	6	NA	(<100)	540	4,420	250
	11	NA	(<50)	1,000	6,740	1,100
	21	NA	(<100)	750	5,110	540
	31	NA	(<50)	430	1,870	310
	41	NA	(<50)	430	1,520	560
	51	NA	(<5.0)	13	48.9	29
Hand Auger	5	0.0516	NA	NA	NA	NA
	10	0.234	NA	NA	NA	NA
	13	0.498	NA	NA	NA	NA
GP-1	1	(<2.5)	(<2.5)	16	190	(<2.5)
	10	(<0.5)	(<0.5)	(<0.5)	1.9	(<0.5)
	20	(<0.005)	(<0.005)	(<0.005)	0.0098	(<0.005)
	30	(<0.005)	(<0.005)	(<0.005)	(<0.005)	(<0.005)
	40	(<0.5)	(<0.5)	(<0.5)	(<0.5)	(<0.5)
	50	(<0.005)	(<0.005)	(<0.005)	(<0.005)	(<0.005)
GP-2	1	(<0.5)	(<0.5)	7.6	46	0.95
	10	(<0.005)	(<0.005)	0.0071	0.024	0.0095
	20	(<0.005)	(<0.005)	(<0.005)	(<0.005)	(<0.005)
	30	(<0.005)	(<0.005)	(<0.005)	0.012	(<0.005)
	40	(<0.5)	(<0.5)	(<0.5)	(<0.5)	(<0.5)
	50	(<0.5)	(<0.5)	(<0.5)	(<0.5)	(<0.5)
GP-3	1	(<500)	(<500)	1,200	8,600	(<500)
	10	(<120)	(<120)	1,800	8,100	(<120)
	20	(<10)	(<10)	150	677	37
	30	(<10)	(<10)	160	783	60
	40	(<0.5)	(<0.5)	(<0.5)	0.9	1.1
	50	(<0.5)	(<0.5)	(<0.5)	(<0.5)	(<0.5)

TABLE 1
SOIL SAMPLE RESULTS
Pilot Chemical Comapny

Units: mg/kg

Soil Sample Location	Depth (ft)	1,2 DCA	Benzene	E. Benzene	Xylenes	Toluene
GP-4	1	(<25)	(<25)	110	429	47
	10	(<0.5)	(<0.5)	0.86	5.59	0.6
	20	(<0.005)	(<0.005)	0.0073	0.036	0.026
	30	(<0.025)	(<0.025)	0.16	0.94	0.18
	40	(<0.5)	(<0.5)	(<0.5)	(<0.5)	(<0.5)
	50	(<25)	(<25)	170	590	(<25)
GP-5	1	(<0.005)	(<0.005)	(<0.005)	0.0249	0.0064
	10	(<10)	(<10)	29	228	58
	20	(<0.5)	(<0.5)	(<0.5)	2.9	(<0.5)
	30	(<0.5)	(<0.5)	1.2	6.4	4.4
	40	(<0.5)	(<0.5)	(<0.5)	0.68	(<0.5)
	50	(<2.5)	(<2.5)	36	151	80
GP-6	1	1	(<0.5)	2	11.7	8.8
	10	(<2.5)	(<2.5)	3.8	23	59
	20	(<0.005)	(<0.005)	(<0.005)	(<0.005)	0.0067
	30	(<0.005)	(<0.005)	(<0.005)	0.011	0.0053
	40	(<0.5)	(<0.5)	(<0.5)	(<0.5)	(<0.5)
	50	(<0.5)	(<0.5)	(<0.5)	(<0.5)	(<0.5)
GP-7	1	(<0.005)	(<0.005)	(<0.005)	(<0.005)	(<0.005)
	10	(<0.005)	(<0.005)	0.043	0.258	0.026
	20	(<0.025)	(<0.025)	0.13	1.16	0.095
	30	(<0.005)	(<0.005)	0.0076	0.0543	0.0076
	40	0.033	(<0.025)	0.38	1.28	0.89
	50	(<0.5)	(<0.5)	1.1	3.92	(<0.5)
GP-8	1	(<0.5)	(<0.5)	(<0.5)	(<0.5)	(<0.5)
	10	(<0.005)	(<0.005)	(<0.005)	(<0.005)	(<0.005)
	20	(<0.005)	(<0.005)	(<0.005)	(<0.005)	(<0.005)
	30	(<0.005)	(<0.005)	(<0.005)	(<0.005)	(<0.005)
	40	(<0.005)	(<0.005)	(<0.005)	(<0.005)	(<0.005)
	50	(<0.005)	(<0.005)	(<0.005)	(<0.005)	(<0.005)
GP-9	1	(<0.005)	(<0.005)	(<0.005)	(<0.005)	(<0.005)
	10	(<0.005)	(<0.005)	(<0.005)	(<0.005)	(<0.005)
	20	(<0.005)	(<0.005)	(<0.005)	(<0.005)	(<0.005)
	30	(<0.005)	(<0.005)	(<0.005)	(<0.005)	(<0.005)
	40	(<0.005)	(<0.005)	(<0.005)	(<0.005)	(<0.005)
	50	(<0.005)	(<0.005)	(<0.005)	(<0.005)	(<0.005)
GP-10	1	(<0.005)	(<0.005)	(<0.005)	0.013	0.0086
	10	(<0.005)	(<0.005)	(<0.005)	(<0.005)	(<0.005)
	20	(<0.005)	(<0.005)	(<0.005)	(<0.005)	(<0.005)
	30	(<0.005)	(<0.005)	(<0.005)	(<0.005)	(<0.005)
	40	(<0.005)	(<0.005)	(<0.005)	(<0.005)	(<0.005)
	50	(<0.005)	(<0.005)	(<0.005)	(<0.005)	(<0.005)

Table 18**Soil Vapor Extraction and Observation Test Wells**

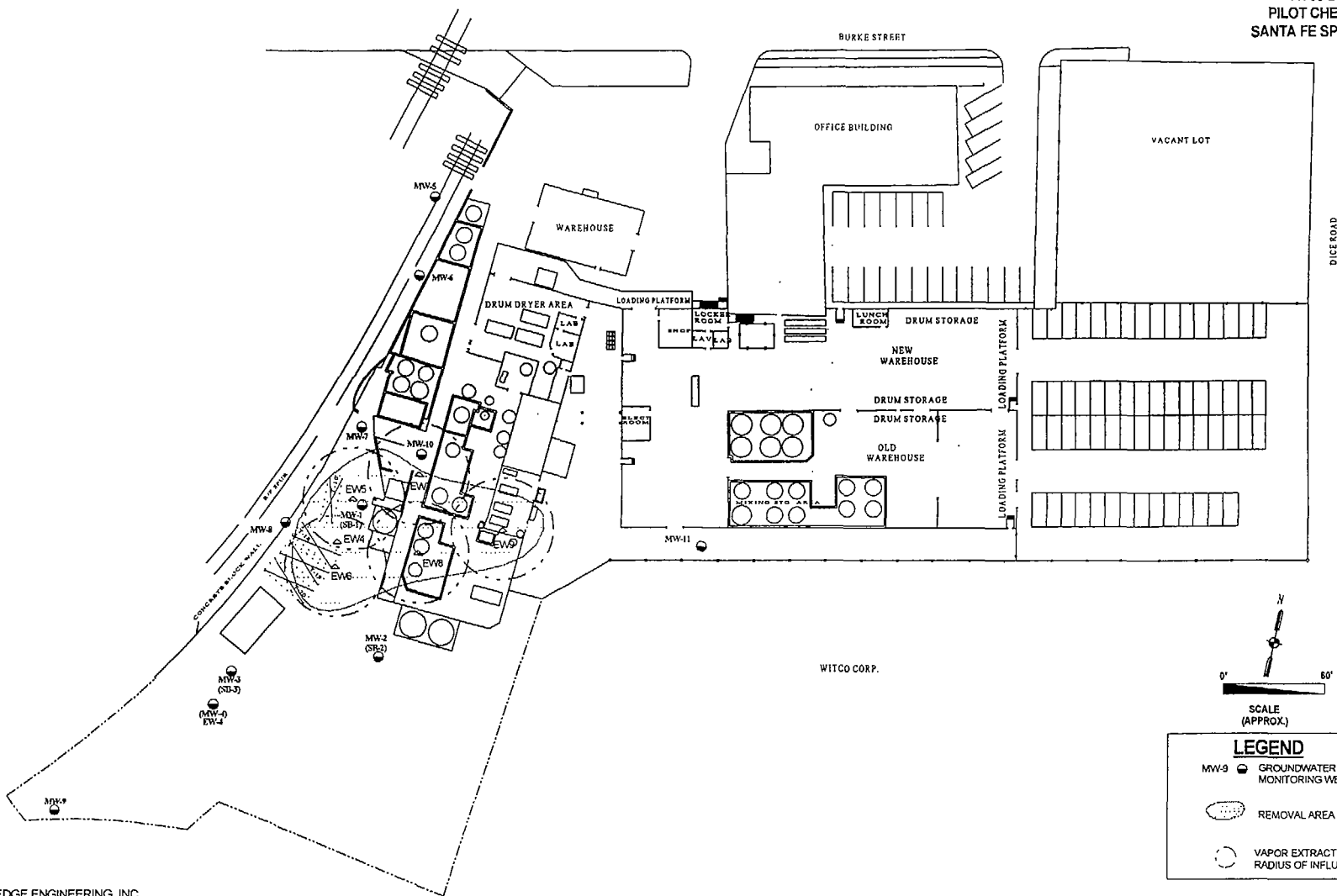
Soil Unit	Extraction Well	Depth (feet bgs)	Screened Interval (feet)	Observation Wells
Upper Soil Unit	EW4 ¹	35	5 to 35	EW1 ¹ EW6 ²
Lower Soil Unit	EW9 ²	55	40 to 55	EW11 ² EW12 ²

Notes

(1) existing vapor extraction well

(2) proposed vapor extraction well

FIGURE 14
 PROPOSED SVE WELL LOCATIONS - UPPER 40'
 11756 BURKE STREET
 PILOT CHEMICAL COMPANY
 SANTA FE SPRINGS, CALIFORNIA



PILOT C
SANTA FE

BURKE STREET

OFFICE BUILDING

VACANT LOT

WAREHOUSE

DRUM DRYER AREA

LOADING PLATFORM

LOCKER ROOM

LUNCH ROOM

DRUM STORAGE

NEW WAREHOUSE

DRUM STORAGE

DRUM STORAGE

OLD WAREHOUSE

LOADING PLATFORM

LOADING PLATFORM

CONCRETE BLOCK WALL

MW-5

MW-6

MW-7

MW-8

MW-9

MW-10

MW-11

MW-12

WITCO CORP.

0' 100' (approx.)

LEGEND

MW-9 GROUND MONITOR

TARGET AREA

FORMER

FIGURE 12
DISTRIBUTION OF 1,2 DCA IN GROUNDWATER
11756 BURKE STREET
PILOT CHEMICAL COMPANY
SANTA FE SPRINGS, CALIFORNIA

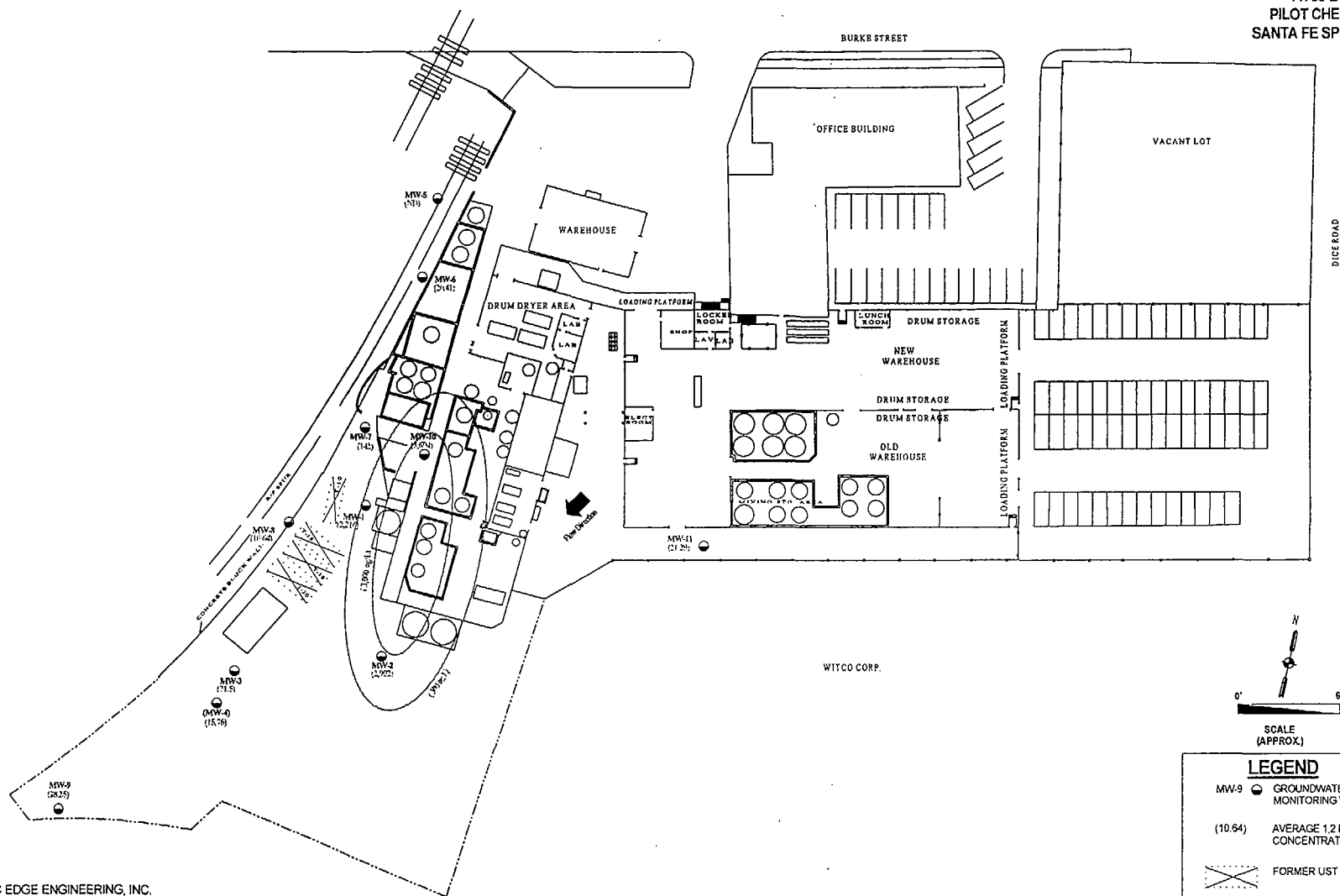
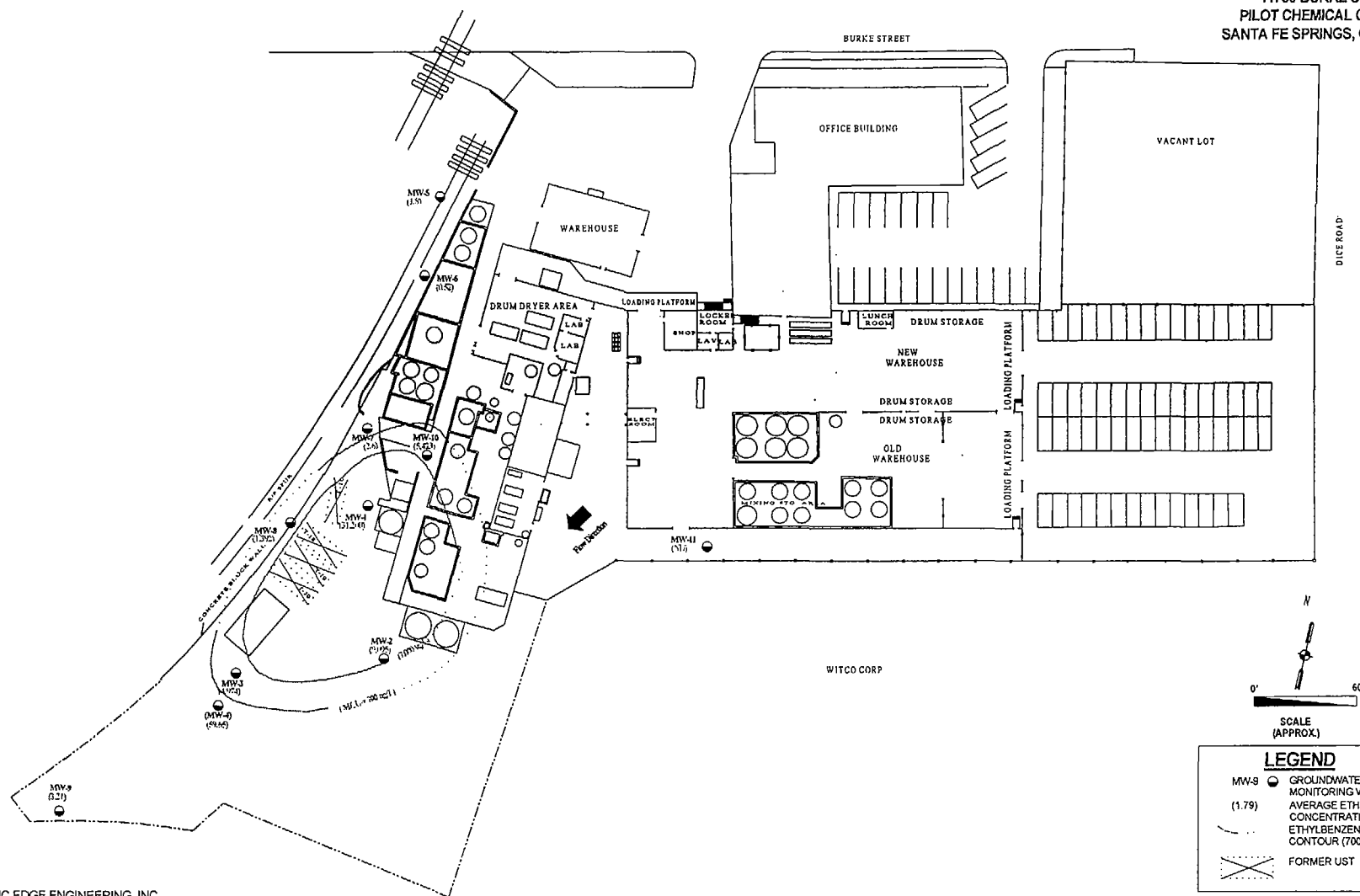


FIGURE 11
DISTRIBUTION OF ETHYLBENZENE IN GROUNDWATER
11756 BURKE STREET
PILOT CHEMICAL COMPANY
SANTA FE SPRINGS, CALIFORNIA



LEGEND

- MW-8 (1.79) GROUNDWATER MONITORING WELL AVERAGE ETHYLBENZENE CONCENTRATION (ug/L)
- ETHYLBENZENE MCL CONTOUR (700 ug/L)
- X FORMER UST

FIGURE 10
DISTRIBUTION OF TOLUENE IN GROUNDWATER
11756 BURKE STREET
PILOT CHEMICAL COMPANY
SANTA FE SPRINGS, CALIFORNIA

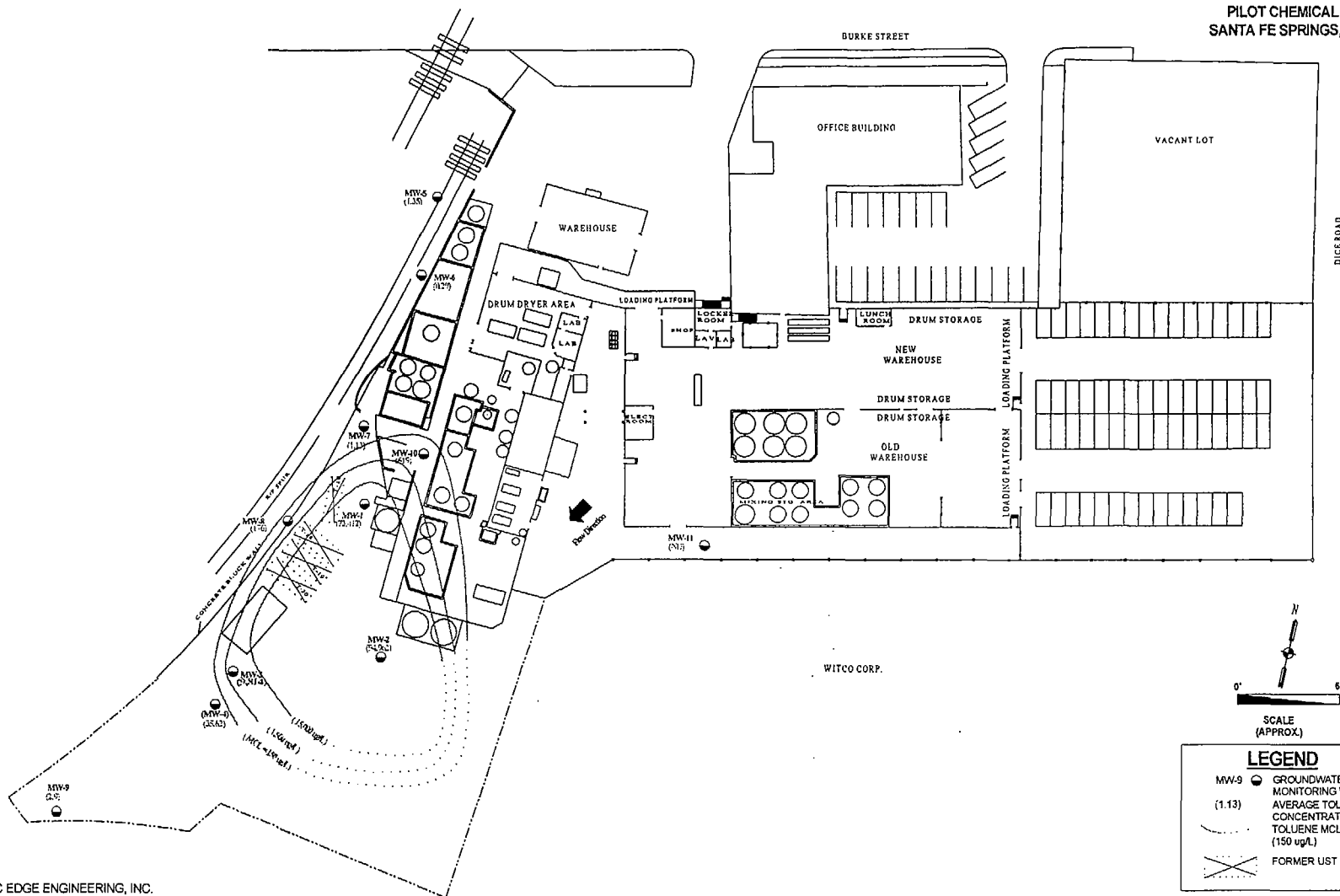


FIGURE 9
DISTRIBUTION OF XYLENE IN GROUNDWATER
11756 BURKE STREET
PILOT CHEMICAL COMPANY
SANTA FE SPRINGS, CALIFORNIA

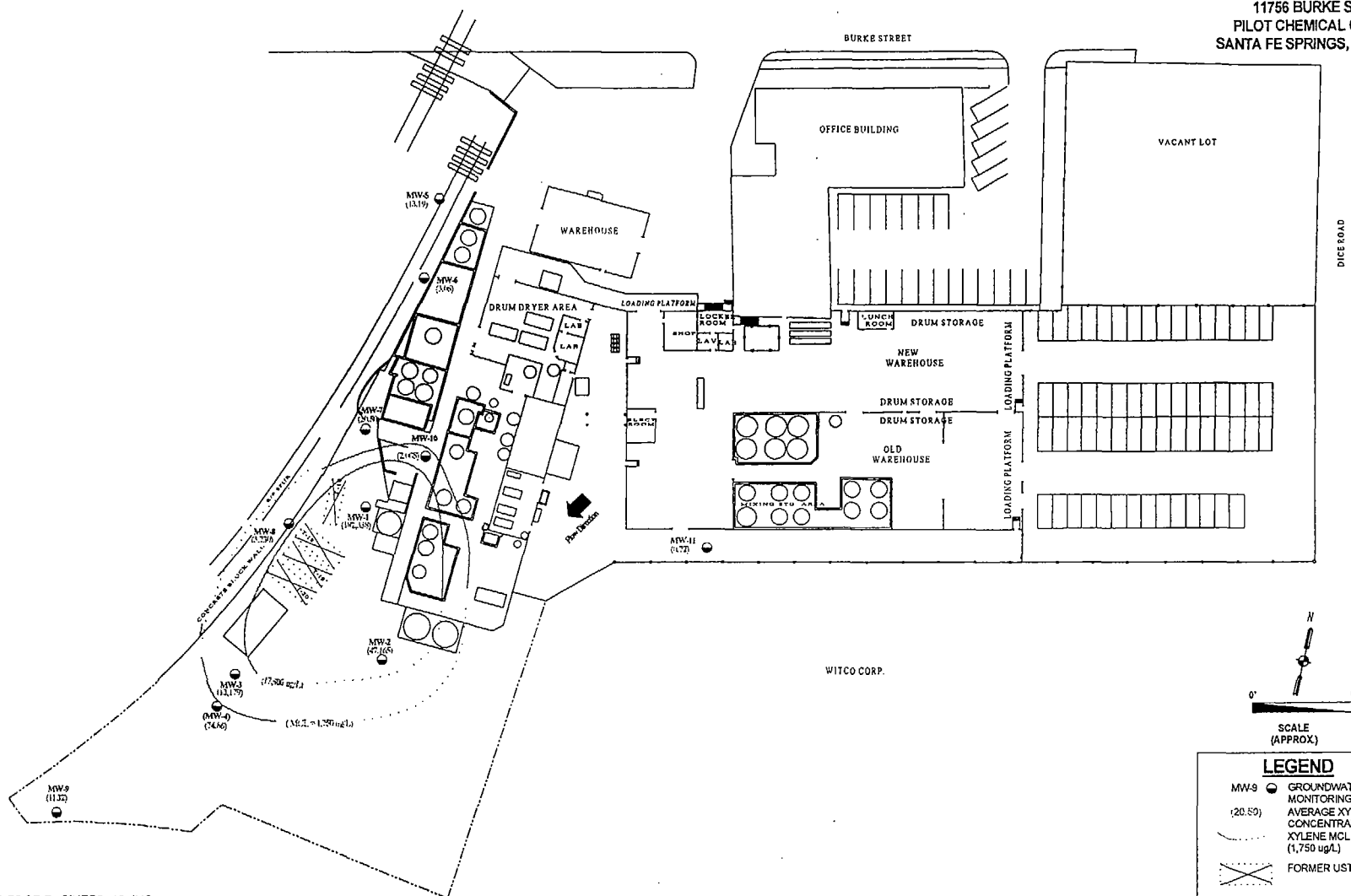


FIGURE 8
DISTRIBUTION OF BENZENE IN GROUNDWATER
11756 BURKE STREET
PILOT CHEMICAL COMPANY
SANTA FE SPRINGS, CALIFORNIA

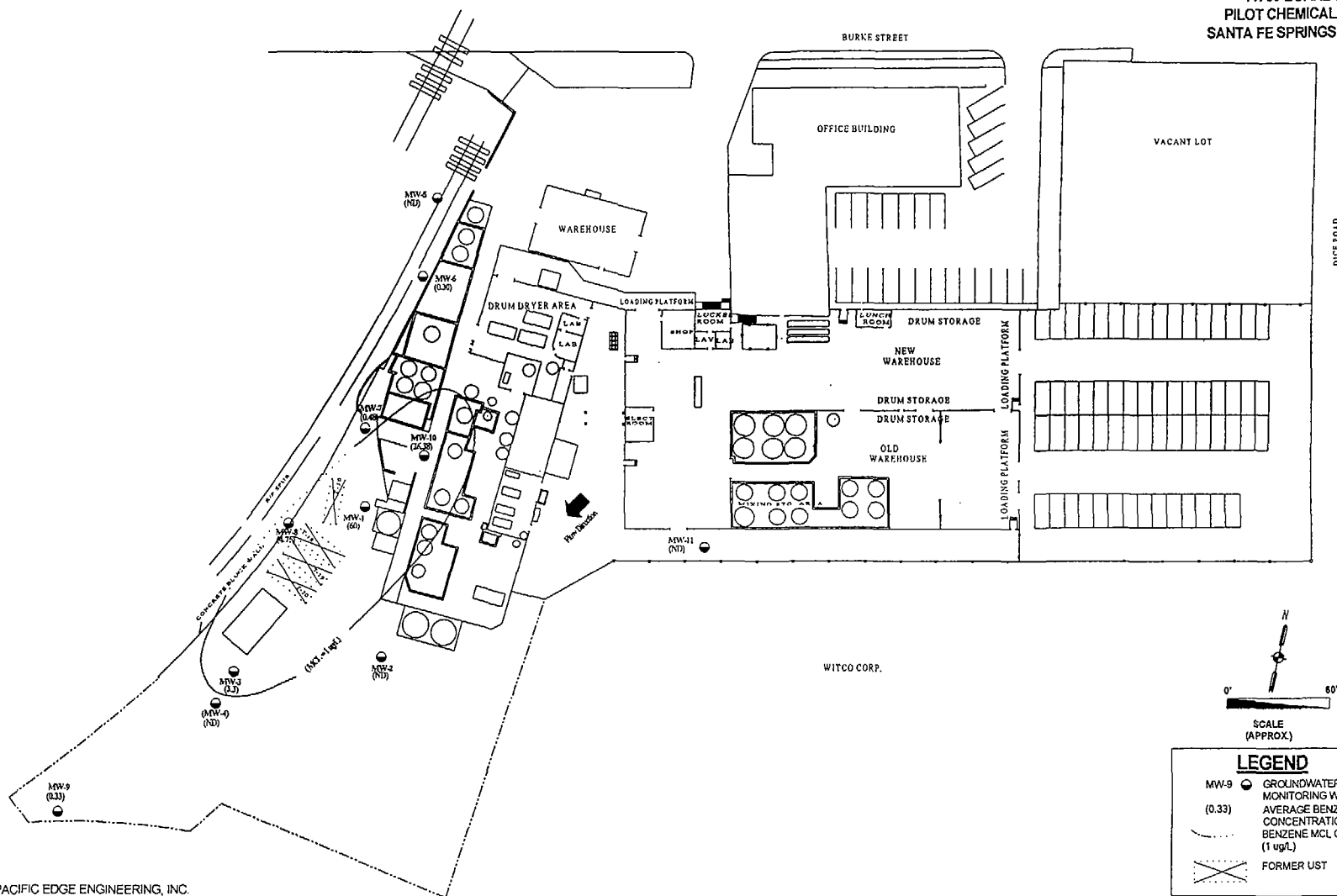


FIGURE 7
 MASS REMOVAL TARGET AREA - SILT/CLAY (SOIL)
 11756 BURKE STREET
 PILOT CHEMICAL COMPANY
 SANTA FE SPRINGS, CALIFORNIA

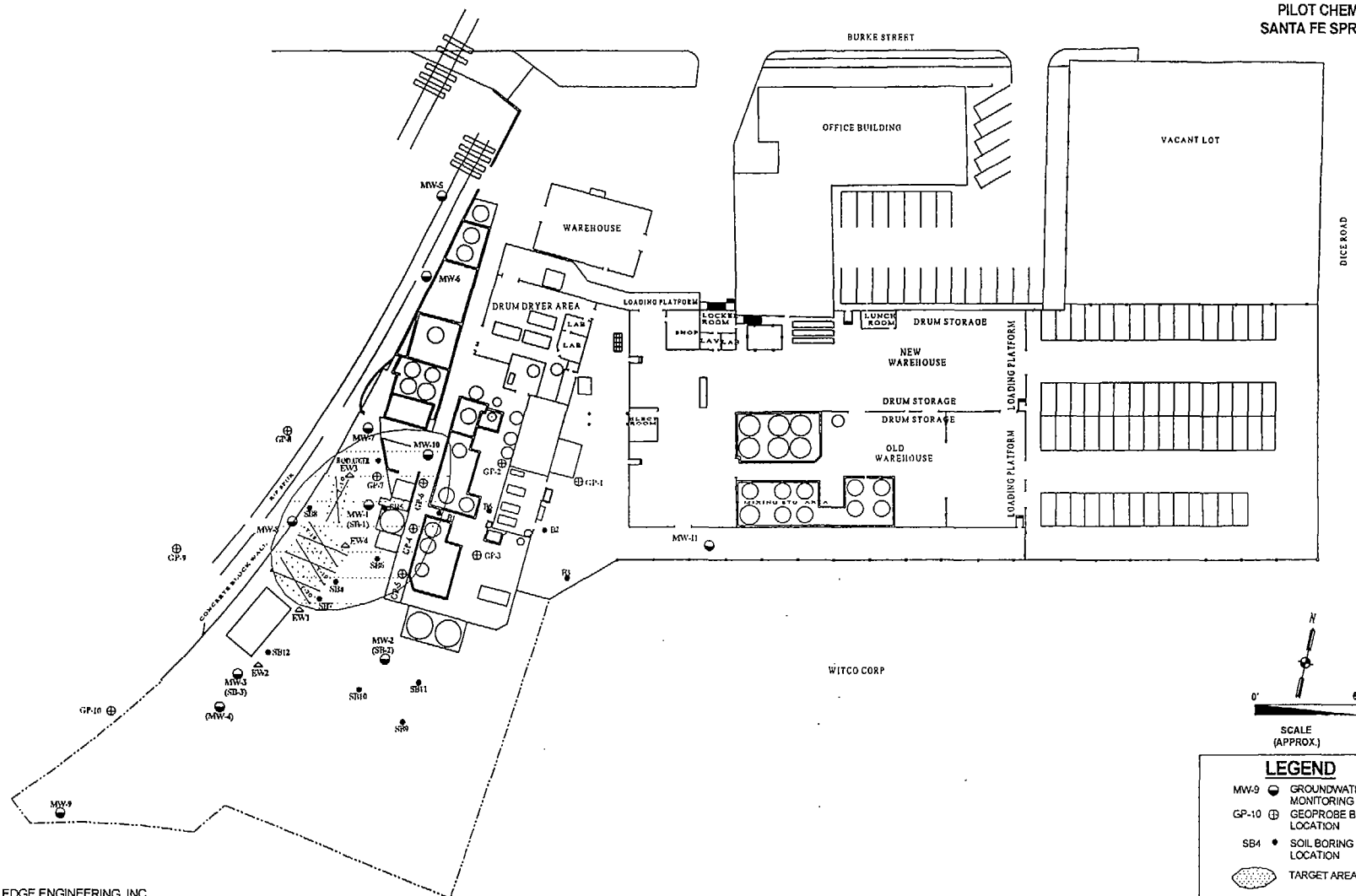
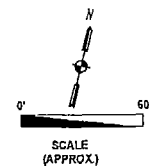
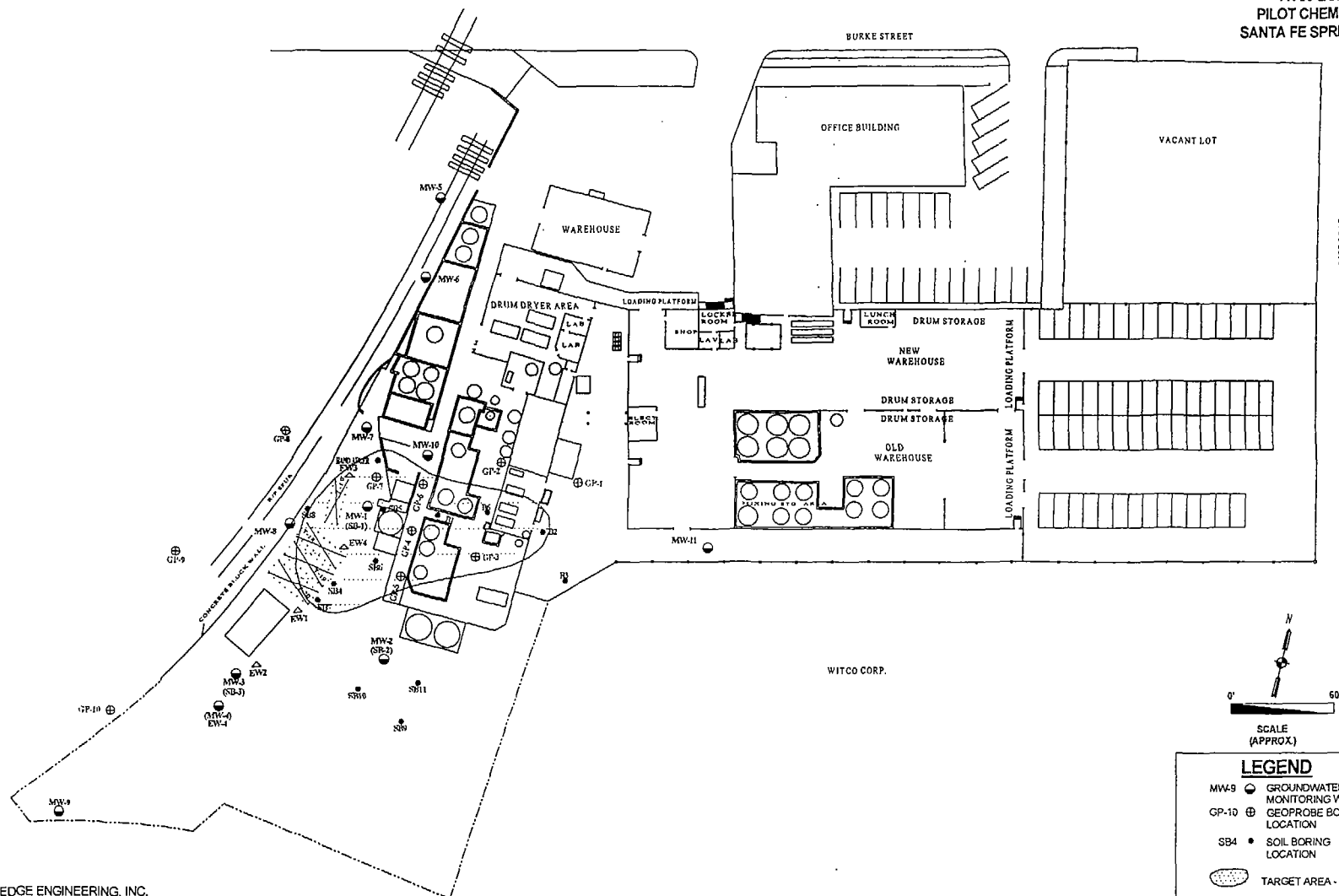
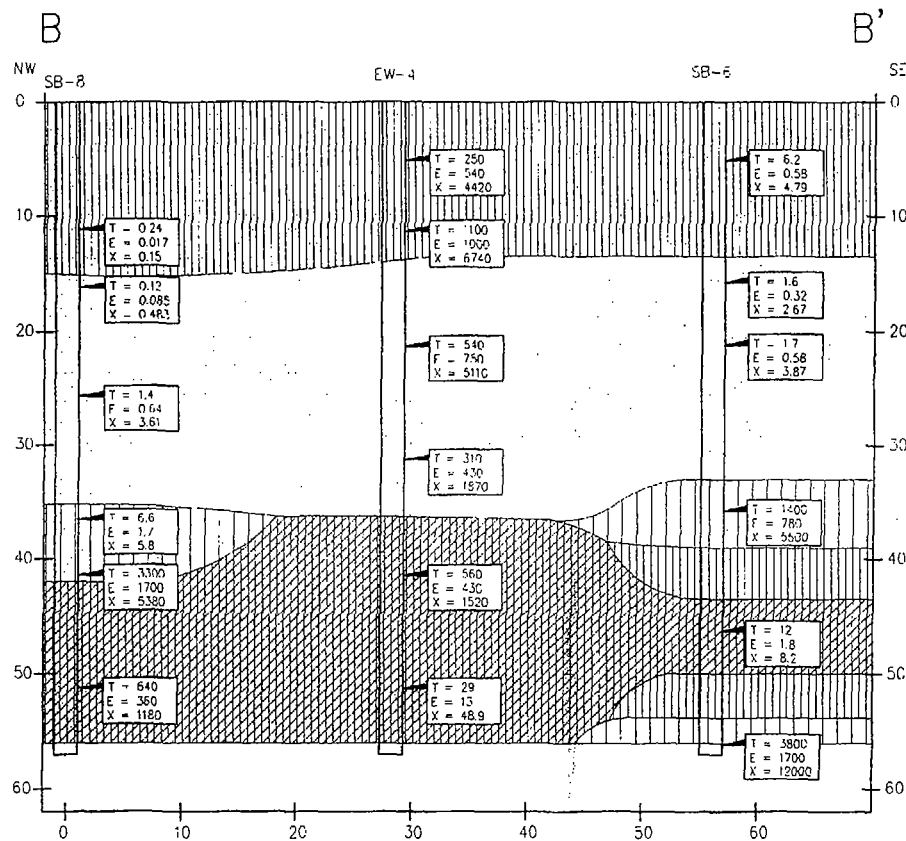


FIGURE 6
 MASS REMOVAL TARGET AREA - UPPER 40' (SOIL)
 11756 BURKE STREET
 PILOT CHEMICAL COMPANY
 SANTA FE SPRINGS, CALIFORNIA



LEGEND	
MW-9	GROUNDWATER MONITORING WELL
GP-10	GEOPROBE BORING LOCATION
SB-1	SOIL BORING LOCATION
	TARGET AREA - UPPER 40'



LEGEND

- SILT AND SILTY SAND
- SAND
- SILTY SAND
- SILT AND CLAY
- SANDY SILT

TPH - TOTAL PETROLEUM HYDROCARBON COMPOUNDS

B - BENZENE
T - TOLUENE
E - ETHYLBENZENE
X - XYLENE
ND - NO COMPOUNDS DETECTED

NOTE: CONCENTRATION IN PARTS PER MILLION (PPM)

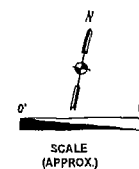
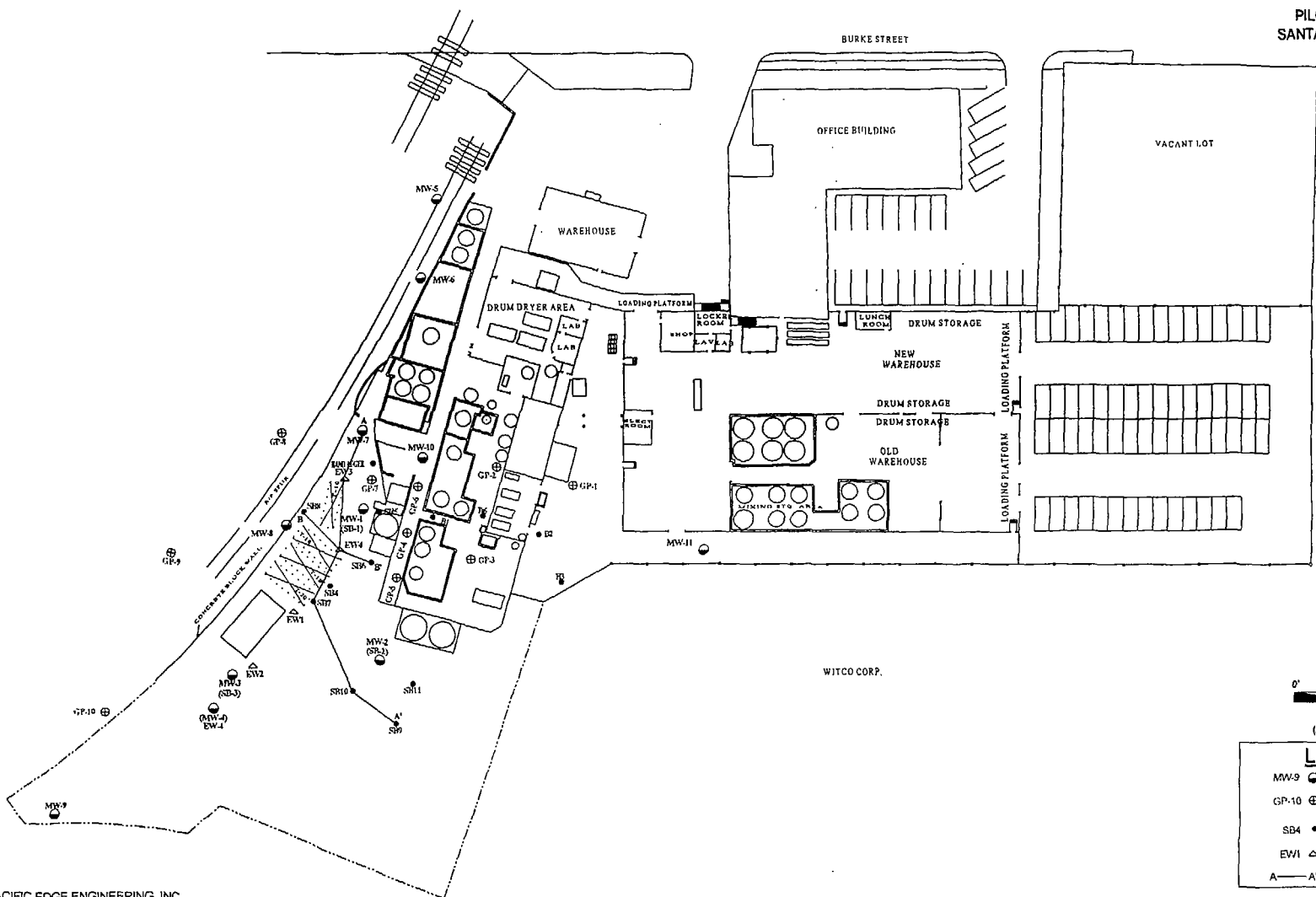
CROSS SECTION B-B'
GEOLOGY AND CHEMICAL RESULTS
PILOT CHEMICAL SITE
SANTA FE SPRINGS

Figure 5

Date: 09/22/00	Scale: 1" = 10'
Drawn By: CF	Sheet: 1 of 1
Checked By: CS	



FIGURE 3
BORING AND WELL LOCATIONS
11756 BURKE STREET
PILOT CHEMICAL COMPANY
SANTA FE SPRINGS, CALIFORNIA



LEGEND

- MW-9 ● GROUNDWATER MONITORING WELL
- GP-10 ⊕ GEOPROBE BORING LOCATION
- SB-4 ● SOIL BORING LOCATION
- EW-1 △ EXISTING SVE WELL
- A—A' CROSS SECTION

plc-2010-02 Drawing and well location

FIGURE 2
 SITE PLAN
 11756 BURKE STREET
 PILOT CHEMICAL COMPANY
 SANTA FE SPRINGS, CALIFORNIA

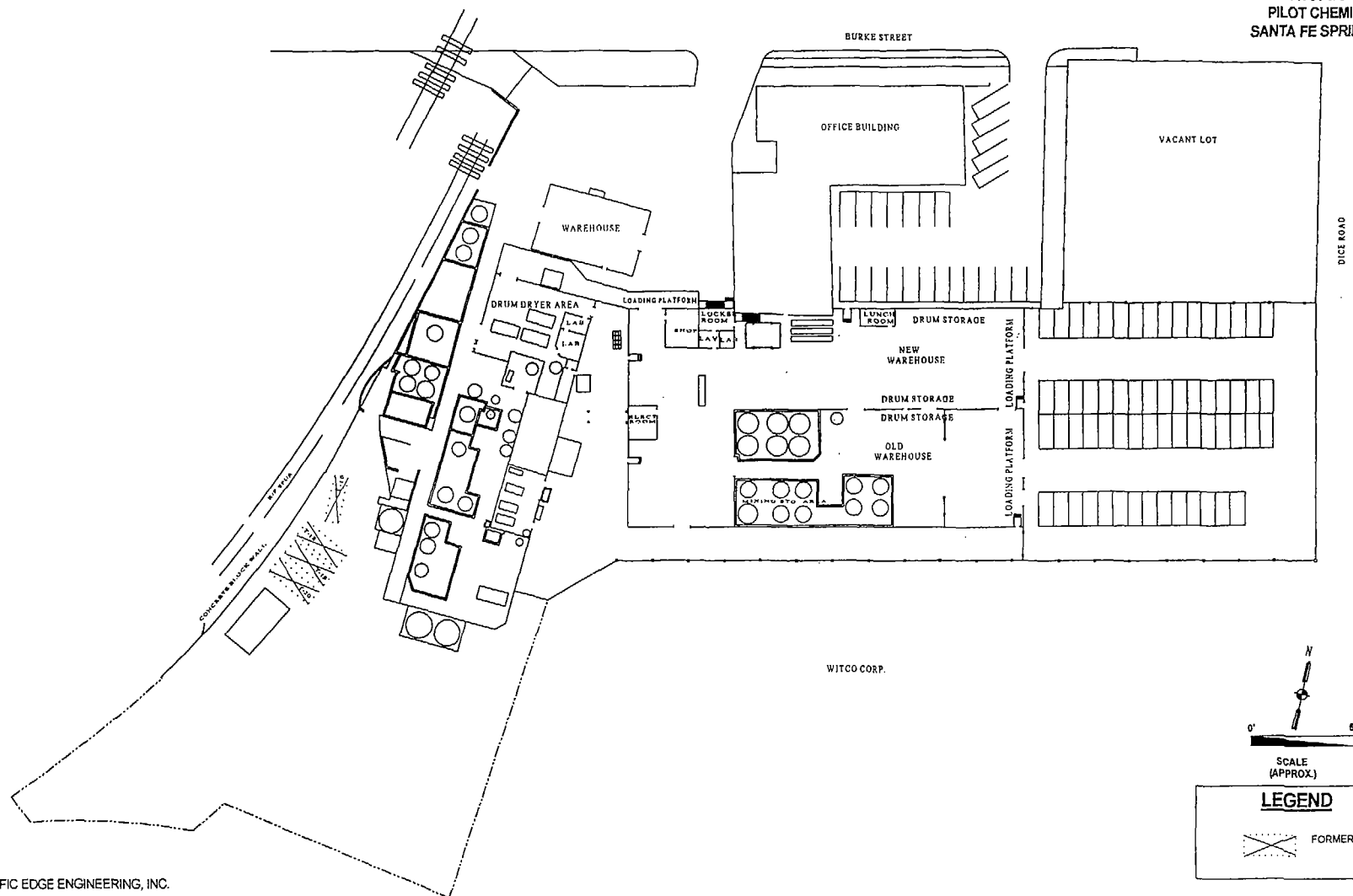
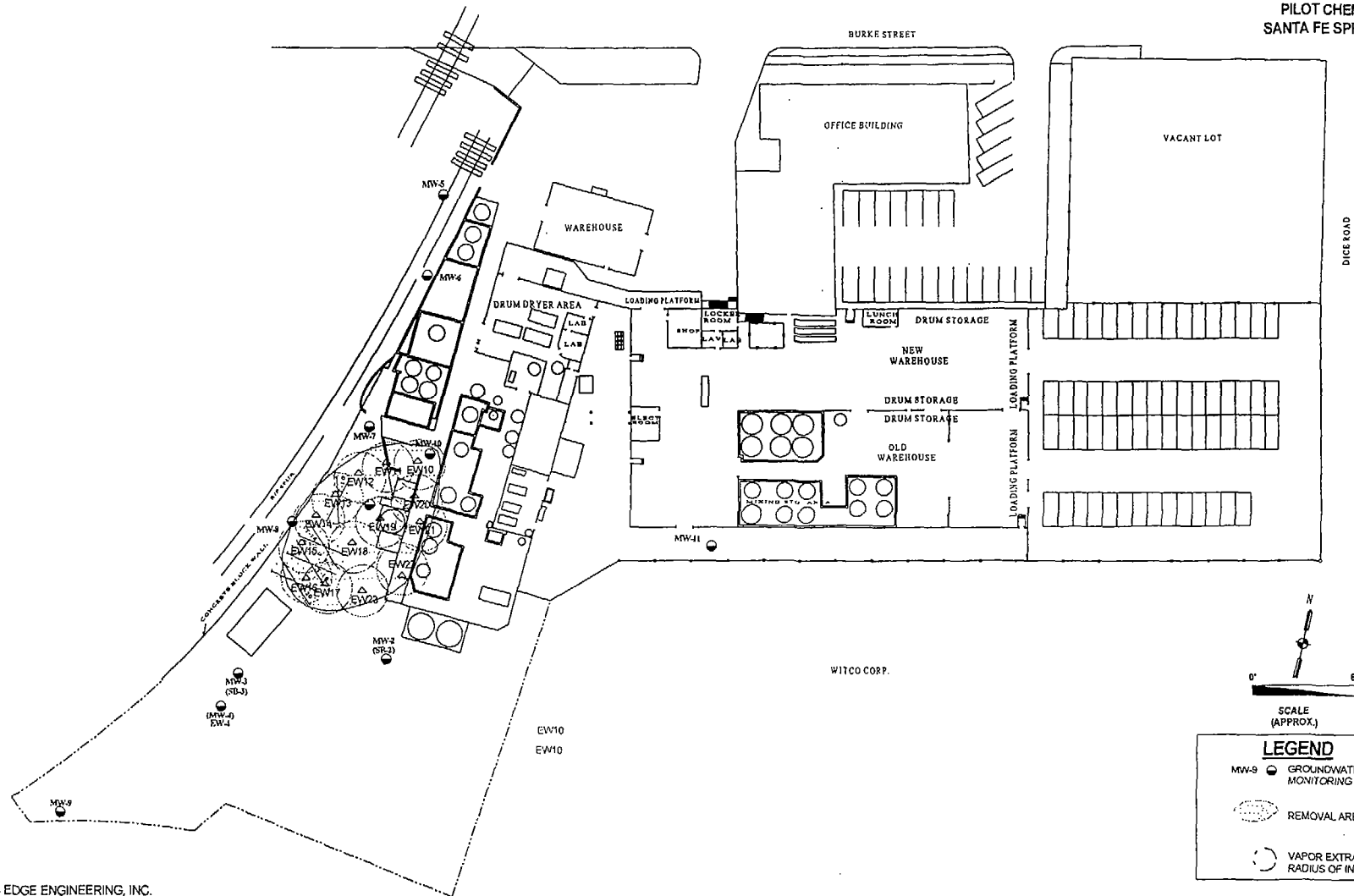


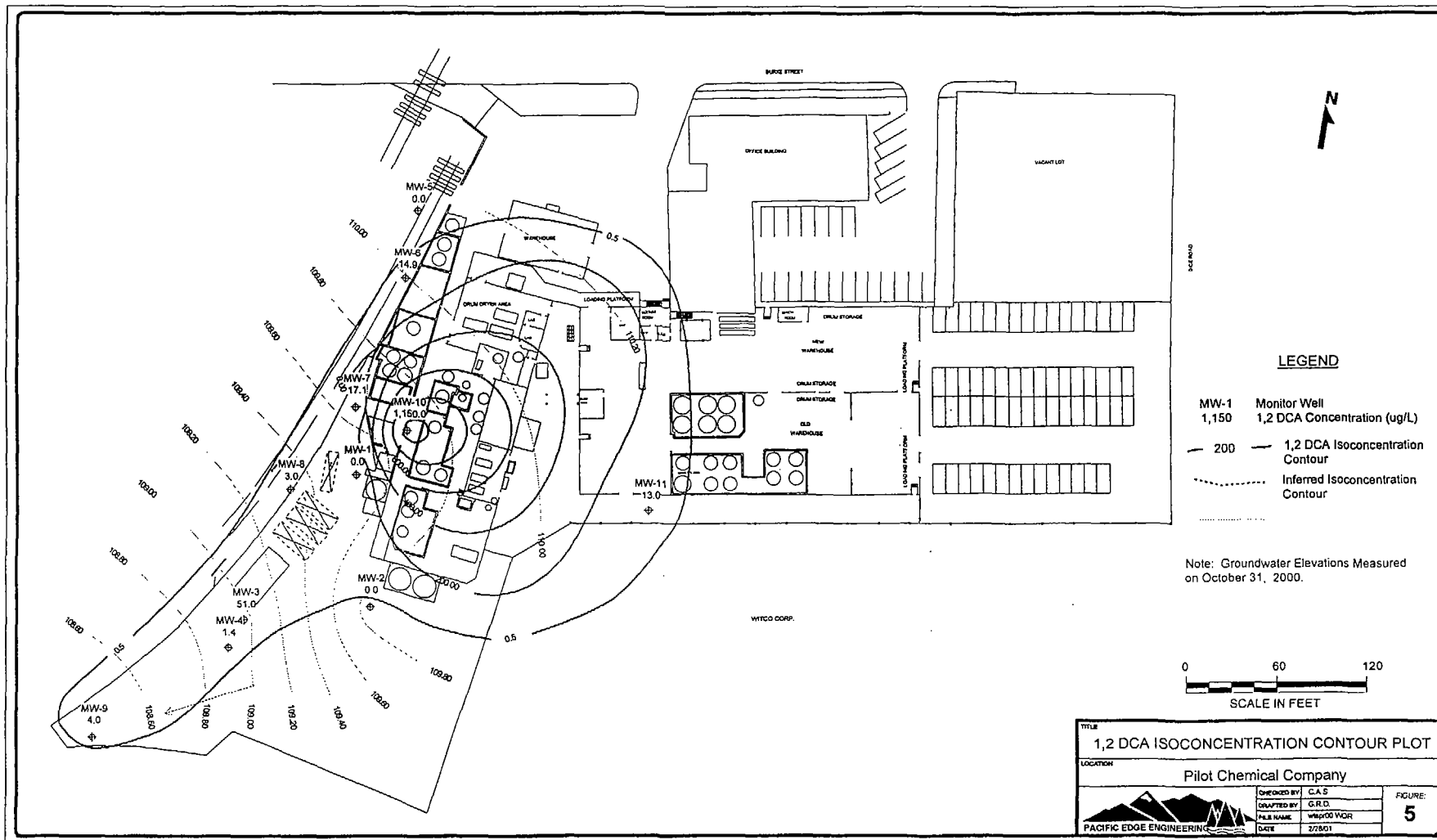
Figure 1
Site Location Map



Microsoft Expedia
Streets98

FIGURE 15
 PROPOSED SVE WELL LOCATIONS - SILT/CLAY
 11756 BURKE STREET
 PILOT CHEMICAL COMPANY
 SANTA FE SPRINGS, CALIFORNIA





February 28, 2001

Steven Hariri
California Regional Water Quality Control Board
Los Angeles Region
320 West Fourth Street, Suite 200
Los Angeles, California 90013

**RE: REVISED REMEDIAL ACTION PLAN, PILOT CHEMICAL COMPANY, 11756 BURKE STREET,
SANTA FE SPRINGS, CALIFORNIA (SLIC NO. 383)**

Dear Mr. Hariri:

Pacific Edge Engineering, Inc. (Pacific Edge), on behalf of Pilot Chemical Company, is submitting the following revisions to the Revised Remedial Action Plan (RAP) dated October 2000 for the above referenced site. These revisions are based on your review comments presented to Pacific Edge at our January 24, 2001 meeting.

Off-Site Sources for Groundwater Contamination

Several contaminants present in groundwater beneath the Pilot Chemical Company site (Site) are believed to be from off-site sources, as evidenced by ten years of groundwater monitoring at the Site and no current or historical use of these contaminants at the Site. These contaminants are:

- 1,1-Dichloroethane (1,1 DCA)
- 1,1-Dichloroethene (1,1 DCE)
- Tetrachloroethene (PCE)
- Carbon Tetrachloride
- Chloroform
- Trichloroethene (TCE)

It is our understanding that the Site is located within an area of regional groundwater contamination. In an effort to identify potential off-site groundwater contaminant source(s), Pacific Edge intends to conduct a database search of published government agency records that list properties near the Site that generate hazardous waste, manage hazardous materials, or have reported chemical releases. Based on the database search, pertinent agency files will be reviewed for nearby sites that are considered a potential off-site source. A letter summarizing the database search and file review findings will be provided to the RWQCB.

Workplans

Per our meeting, you indicated that the RWQCB's Remedial Action Plan (RAP) approval letter will state that the following workplans must be submitted for review and approval:

1. soil vapor extraction pilot test

N:\Pilot\0019.002.001\RAP\Text\rap_text3rev.doc

2. in-situ chemical oxidation pilot test
3. full-scale in-situ chemical oxidation
4. long-term natural attenuation monitoring

These workplans will be prepared and submitted to the RWQCB prior to implementing any of the above activities. In addition, a Waste Discharge Requirement (WDR) application will be submitted and the necessary permits obtained prior to implementing the pilot test and full-scale operation for in-situ chemical oxidation.

Soil Cleanup Goals

The table below presents the soil cleanup goals (C) based on the revised attenuation factors discussed at our meeting.

Distance Above Groundwater (ft)	Depth Below Surface (ft)	Benzene	Toluene	Ethylbenzene	Xylenes	1,2 DCA
		mcl=0.001 ppm	mcl=0.15 ppm	mcl=0.7 ppm	mcl=1.75 ppm	mcl=0.0005 ppm
		C (ppm)	C (ppm)	C (ppm)	C (ppm)	C (ppm)
55	0	0.061	3.059	11.706	31.959	0.0090
50	5	0.052	2.491	9.448	25.751	0.0074
45	10	0.043	1.923	7.189	19.543	0.0058
40	15	0.034	1.355	4.930	13.335	0.0042
35	20	0.030	1.204	4.401	11.887	0.0036
30	25	0.026	1.054	3.873	10.439	0.0031
25	30	0.022	0.903	3.344	8.991	0.0026
20	35	0.018	0.753	2.815	7.543	0.0021
15	40	0.013	0.602	2.286	6.094	0.0016
10	45	0.009	0.451	1.758	4.646	0.0011
5	50	0.005	0.301	1.229	3.198	0.0008
0	55	0.001	0.150	0.700	1.750	0.0005

The above cleanup goals do not impact the upper sandy unit cleanup area depicted on Figure 6 of the October 2000 RAP. A revised Figure 7 reflecting the cleanup area in the lower clayey zone is attached.

Sample Analysis

The October 2000 RAP included the analysis of volatile organic compounds (VOCs) by EPA Method 8020. The VOCs analysis is hereby revised to EPA Method 8021B and MTBE verification by EPA Method 8260B.

1,2 DCA Isoconcentration

Attached is Figure 5 from the October 2000 semi-annual groundwater sampling report. This figure presents a 1,2 DCA isoconcentration contour plot in groundwater and has been revised to include the MCL contour for 1,2 DCA.

Steven Hariri
February 28, 2001
Page 3

If you have any questions or comments, please call me at (949) 470-1937.

Sincerely,

Craig A. Stolz, P.E.
Principal Engineer

Attachments: Figures 5 and 7

Cc: Dave Nusser – Pilot Chemical Company



PACIFIC EDGE ENGINEERING, INC.

January 23, 2008

Elizabeth Erickson
AEG
Regional Water Quality Control Board—Los Angeles
320 West 4th Street, Suite 200
Los Angeles, California 90013

RE: Semi-Annual Groundwater Monitoring & Soil Remediation Progress Report, Pilot Chemical Company, SLIC No. 383

Dear Ms. Erickson:

On behalf of Pilot Chemical Company, Pacific Edge Engineering, Inc. (Pacific Edge) is providing the attached semi-annual groundwater monitoring and soil remediation progress report for the site located at 11756 Burke Street, Santa Fe Springs, California. This semi-annual report is for the second event in 2007.

The next sampling event is scheduled for April 2008. If you have any questions, please call me at (949) 470-1937.

Sincerely,

Craig A. Stolz, P.E.
Principal Engineer

Cc: Matthew Leary—Pilot Chemical Company

**Semi-Annual Groundwater
Monitoring & Soil Remediation
Progress Report**

October, 2007
(SLIC NO. 383)

**Pilot Chemical Company
11756 Burke Street
Santa Fe Springs, California**

Date: **December 2007**

Prepared for: **Pilot Chemical Company
11756 Burke Street
Santa Fe Springs, California**

Prepared by: **Pacific Edge Engineering, Inc.
26691 Plaza, Suite 230
Mission Viejo, California 92691**

TABLE OF CONTENTS

<u>Section</u>	<u>Page</u>
PROFESSIONAL CERTIFICATION.....	III
1.0 EXECUTIVE SUMMARY	1
1.1 GROUNDWATER MONITORING & SAMPLING	1
1.2 SOIL REMEDIATION.....	1
2.0 INTRODUCTION	2
2.1 BACKGROUND.....	2
3.0 GROUNDWATER MONITORING.....	3
3.1 GROUNDWATER ELEVATION AND FLOW DIRECTION	3
3.2 GROUNDWATER SAMPLING.....	3
3.3 SAMPLE RESULTS	4
3.3.1 Methyl Blue Active Substances (MBAS) – EPA Method 425.1	4
3.3.2 HVOCs – EPA Method 601	4
3.3.3 VOCs – EPA Method 602	5
3.3.4 Total Petroleum Hydrocarbons as diesel – LUFT Method.....	6
3.4 CONCLUSION	6
4.0 SOIL VAPOR EXTRACTION	7
4.1 SVE SYSTEM DESCRIPTION.....	7
4.2 SVE OPERATION.....	8
4.3 CONTAMINANT REMOVAL ESTIMATE	9
4.4 PLANNED REMEDIATION	10

TABLES

Table 1	Historical Groundwater Elevation Data
Table 2	Historical Groundwater Analytical Results
Table 3	Laboratory Analytical Results & Mass Removal Calculation

FIGURES

Figure 1	Site Location Map
Figure 2	Site Plan
Figure 3	Groundwater Flow Direction
Figure 4	1,2 Dichloroethane Distribution in Groundwater
Figure 5	Total Xylene Distribution in Groundwater
Figure 6	SVE Well Locations

GRAPHS

Graph 1	Estimated Cumulative Pounds VOCs & DCA Removed
Graph 2	Cumulative Pounds VOC Removed by Extraction Well
Graph 3	Cumulative Pounds DCA Removed by Extraction Well



PACIFIC EDGE ENGINEERING

TABLE OF CONTENTS (cont.)

APPENDICES

Appendix A	Groundwater Sampling Protocol and Field Notes
Appendix B	Laboratory Reports, Quality Control Reports, Chain-Of Custody
Appendix C	SCAQMD SVE Permit
Appendix D	SVE Laboratory Reports
Appendix E	SVE Operational Logs



PROFESSIONAL CERTIFICATION

Pacific Edge Engineering, Inc., under the professional supervision of Craig A. Stolz, has prepared this report. The findings, conclusions, specifications, and/or professional opinions presented in this report have been prepared in accordance with generally accepted professional engineering practice, and within the scope of the project. There is no other warranty, either expressed or implied.



Craig A. Stolz
P.E. No. C049756
Principal Engineer
Pacific Edge Engineering, Inc.



PACIFIC EDGE ENGINEERING
(949) 470-1937; (949) 470-0943 (FAX)

1.0 EXECUTIVE SUMMARY

This report presents the results of the October 2007 (semi-annual) groundwater monitoring event and the status of ongoing soil remediation at the Pilot Chemical Company, 11756 Burke Street, Santa Fe Springs, California (the Site).

1.1 GROUNDWATER MONITORING & SAMPLING

Eleven (11) on-site groundwater monitoring wells are sampled and the water elevation measured on a semi-annual basis at the Site. The purpose of this sampling and monitoring event is to update groundwater quality data and verify the direction of groundwater flow direction at the facility.

The October 2007 data indicate that the groundwater flow direction is consistent with previous sampling events. Detected chemical concentrations are generally consistent with previous sampling events.

The next semi-annual sampling event is planned for April 2008.

1.2 SOIL REMEDIATION

A soil vapor extraction (SVE) system was installed at the Site and began operation on January 24, 2006. SVE operation and remediation progress is summarized in the semi-annual groundwater monitoring reports, starting with the August 2006 event. This report documents operation of the SVE system from July 11, 2007 through December 11, 2007. During this period the SVE did not operate from August 9th through December 6th due to replacement of the liquid ring pump.

Since startup the SVE system has been operated to focus on the removal of 1, 2-dichloroethane (DCA) within the remediation target area. DCA in soil is collocated within the significantly larger toluene, ethylbenzene, and total xylenes (TEX) contamination area. The objective is to remediate the smaller DCA mass using activated carbon for vapor treatment. Once the DCA plume has been remediated, soil remediation will focus on the larger and more significant mass of TEX. It is anticipated that a



thermal/catalytic oxidizer will be a more efficient vapor control alternative for the TEX contamination.

During the current reporting period an estimated 120 pounds of contaminants (DCA and TEX) were removed from the subsurface. The total mass of contaminants removed since startup is estimated to be 2,302 pounds and of the total approximately 42.6 pounds is attributed to DCA.



2.0 INTRODUCTION

This report presents the results of the October 2007 (semi-annual) groundwater monitoring event and soil remediation from July 11, 2007 through December 11, 2007. Figure 1 presents the Site location.

2.1 BACKGROUND

The Site is approximately 4.3 acres in size. The Site borders Burke Street on the north, Dice Road on the east, and industrial facilities on the west and south. A residential area is located northwest of the site. The site is used to manufacture detergent for industrial purposes and utilizes aboveground tanks and formerly used underground tanks as part of their operations. Aboveground tanks are located on the western portion of the site within containment areas and within the Old Warehouse, also within containment areas. The former underground storage tanks were used to store toluene, xylenes, and caustic materials. These tanks were located at the western portion of the property and were removed during the late 1980's.

Following the removal of the underground storage tanks, several soil and groundwater investigations were conducted at the Site. A summary of these investigations is presented in the approved RAP for the Site (dated October 2000, and revised February 28, 2001).

Toluene, ethylbenzene, total xylenes (TEX), and 1, 2-DCA (DCA) are the primary soil and groundwater contaminants at the Site. The former USTs have been identified as the source of the TEX contaminants. DCA has been detected in shallow soil in a localized area just east of the former USTs. DCA soil contamination is presumed to be from minor spill(s) associated with the removal of a former aboveground tank used to store DCA. DCA in soil is collocated within the significantly larger TEX soil contamination mass.



3.0 GROUNDWATER MONITORING

Quarterly and/or semi-annual groundwater monitoring has been conducted at the Site since April 1991. Figure 2 presents the facility site plan, which includes all groundwater monitor well locations.

3.1 GROUNDWATER ELEVATION AND FLOW DIRECTION

On October 29, 2007 static water levels were measured in the eleven monitoring wells located at the Site using an electronic water interface probe. The depth to groundwater and groundwater elevation data from June 1995 through October 2007 are presented in Table 1 to provide the historic trend in water level.

During the October 2007 event the groundwater elevation ranged from 96.67 feet above mean sea level (MSL) in downgradient well MW-9 to 99.37 feet MSL in well MW-11. The groundwater elevation measured at MW-4 was not consistent with historic readings relative to the other wells and is therefore considered erroneous for this monitoring event. Monitor well MW-4 elevation data was not included in evaluation of groundwater flow direction or overall groundwater elevation for this monitoring event. The groundwater levels have generally decreased approximately 9.27 feet since the last event in April 2007, reflecting drought conditions being experienced in Southern California.

Using the data presented in Table 1, a groundwater elevation contour map was plotted for the October 2007 event and is provided as Figure 3. The groundwater flow direction is to the south-southwest. The groundwater gradient is approximately 0.0066 feet per foot. The groundwater flow direction and gradient during this event are generally consistent with those of previous events.

3.2 GROUNDWATER SAMPLING

On October 29 and October 30, 2007, groundwater samples were collected from the eleven monitoring wells at the facility. Samples were obtained using a Waterra Inertial Pump and dedicated poly tubing. Summaries of Pacific Edge's standard groundwater



sampling protocols and field notes for this sampling event are provided as Appendix A. All groundwater samples were analyzed for the following compounds:

- Halogenated Volatile Organic Compounds (HVOCs) using EPA Method 601
- Aromatic Volatile Compounds (VOCs) using EPA Method 602
- Surfactants – MBAS using EPA Method 425.1
- Total Petroleum Hydrocarbons – diesel range (TPHd) by DHS LUFT Method.
- pH using EPA Method 150.1

A duplicate sample (DUP-1 collected from MW-8) was submitted to the laboratory for analysis of HVOCs and VOCs using EPA Methods 601 and 602.

3.3 SAMPLE RESULTS

Copies of the chain-of-custody forms and laboratory analytical reports are provided as Appendix B. Laboratory results for this and previous events are summarized in Table 2.

3.3.1 Methyl Blue Active Substances (MBAS) – EPA Method 425.1

MBAS is an indicator of surfactants. During the October 2007 event, MBAS was detected in all eleven wells. Detected MBAS concentrations at the Site ranged from 0.4 milligrams per liter (mg/L) in MW-8 to 8.73 mg/L in MW-1. Detected MBAS concentrations are generally consistent with historical results for the Site.

3.3.2 HVOCs – EPA Method 601

Eight (8) HVOCs were detected in groundwater during this sampling event and include:

- 1,1-dichloroethane (1, 1-DCA) was only detected in well MW-9, and at a concentrations of 49.1 ug/L. 1, 1-DCA is typically detected in MW-9 and on occasion detected in MW-11. The detected concentration in MW-9 for this event is consistent with past events.



- 1, 1-dichloroethene (1, 1-DCE) was detected in wells MW-9 and MW-11 at concentrations of 3.1 ug/L and 1.8 ug/L, respectively. Historically, 1,1-DCE has been detected in these wells at similar concentrations.
- Tetrachloroethane (PCE) was detected in MW-4, MW-5, MW-6, MW-7, MW-8, and MW-11 at concentrations of 0.7 ug/L, 4 ug/L, 7.1 ug/L, 0.9 ug/L, 1 ug/L, and 18.7 ug/L, respectively. Historically, PCE has been detected in these wells at similar concentrations.
- Carbon Tetrachloride was detected in MW-5, MW-6, and MW-8 at concentrations of 78 ug/L, 23.6 ug/L, and 3 ug/L, respectively. The highest carbon tetrachloride concentrations were detected in upgradient wells MW-5 and MW-6.
- Chloroform is typically detected in most wells at the Site, with periodic non-detection in some wells. During the October 2007 event, Chloroform was detected at concentrations from 0.9 ug/L in MW-7 to 41 in upgradient well MW-5 ug/L.
- 1,2-DCA (DCA) was detected in all wells, with the exception of upgradient well MW-5 and well MW-3. Detected concentrations ranged from 1.1 ug/L in MW-4 to 5,000 ug/L in MW-10. These results are generally consistent with historical data. Figure 4 presents the distribution of DCA in groundwater during this sampling event.
- Trichloroethene (TCE) was detected in MW-4, MW-6, MW-7, MW-8, MW-9, and MW-11 at concentrations of 1.5 ug/L, 2 ug/L, 1.8 ug/L, 1.4 ug/L, 206 ug/L, and 3.1 ug/L, respectively.
- Cis-1,2 DCE was detected in MW-9 at concentration of 5.8 ug/L. Cis-1,2 DCE is periodically detected in this well at a similar concentration.

3.3.3 VOCs – EPA Method 602

VOCs detected in groundwater during this sampling event include:



- Ethylbenzene was detected in MW-1, MW-2, and MW-3 at concentrations of 16,100 ug/L, 7,000 ug/L, and 4,250 ug/L, respectively. These results are generally consistent with historical data.
- Toluene was detected in MW-1, MW-2, and MW-3 at concentrations of 57,100 ug/L, 45,000 ug/L, and 8,900 ug/L, respectively. These concentrations are generally consistent with historical data.
- Total xylenes were detected in seven of the eleven wells sampled. Total xylene concentrations ranged from 6 ug/L in upgradient well MW-5 to 93,600 ug/L in MW-1. Figure 5 presents the distribution of total xylenes in groundwater during this sampling event.

3.3.4 Total Petroleum Hydrocarbons as diesel – LUFT Method

Total petroleum hydrocarbons (as diesel) is occasionally detected at low concentrations in some wells. During the October 2007 event, TPH as diesel was detected at a concentration of 0.73 mg/L in well MW-1.

3.4 CONCLUSION

The groundwater flow direction for the October 2007 event is consistent with previous sampling events. Detected chemical concentrations are generally consistent with previous sampling events. The next groundwater sampling event is scheduled for April 2008.



4.0 SOIL VAPOR EXTRACTION

4.1 SVE SYSTEM DESCRIPTION

A full scale SVE system was installed at the Site and consists of a 25 horsepower liquid ring pump capable of 250 standard cubic feet per minute (scfm) and can operate up to a vacuum of 25-inches of mercury. Extracted vapors are routed through a 120-gallon air/water separator and treated using two canisters connected in series, each filled with 2,000 pounds of granular activated carbon. The system also includes a heat exchanger used to cool down the vapor stream prior to treatment by the carbon canisters. A total of 11 vapor extraction wells are installed at the Site. The extraction wells are manifolded and routed to the SVE system via aboveground PVC piping. The following Table summarizes the SVE well construction details. SVE well locations are depicted on Figure 6.

EXTRACTION WELL SUMMARY

Soil Unit	SVE Well I.D.	Date Installed	Well Diameter (inches)	Total Depth (feet bgs)	Screened Interval (ft)
Upper ¹	VS1	October 22, 2002	2	37	7 to 37
Upper ¹	VS2	October 22, 2002	2	37	7 to 37
Upper ¹	EW3	September 1991	4	35	5 to 35
Upper ¹	EW4	September 1991	4	35	5 to 35
Lower ²	VD1	October 22, 2002	2	55	35 to 55
Lower ²	VD2	October 22, 2002	2	55	35 to 55
Lower ²	VD3	October 22, 2002	2	55	35 to 55
Lower ²	VD4	August 15, 2005	2	56.5	36 to 56
Lower ²	VD5	August 15, 2005	2	56.5	36 to 56
Lower ²	VD6	August 16, 2005	2	56.5	36 to 56
Lower ²	VD7	August 16, 2005	2	56.5	36 to 56

1 upper soil unit – sandy, sandy/silt soils

2 lower soil unit – silt, clayey/silt soils



4.2 SVE OPERATION

The following provides an operational summary for the SVE system:

OPERATIONAL SUMMARY

Equipment Information:	Bisco, Model 250 High Vac Carbon System
Discharge Permit Information:	SCAQMD Permit No. F79822 Expiration Date: NONE Discharge Limits: 13.6 ppmv (TOC) 0.45 ppmv (benzene)
Current Reporting Period: July 10, 2007 – December 11, 2007	Hours of Operation: 696 hours Total Pounds of VOCs Removed: 120
Since System Startup: January 24, 2006 – December 11, 2007	Total Hours of Operation: 10,500 Total Pounds of VOCs Removed: 2,302

Vapor concentrations are measured during Operation and Maintenance (O&M) visits which correspond to the frequency set by the permit conditions (Appendix C). Beginning on March 30, 2007, Pilot Chemical personnel began operating and monitoring the system on a daily basis. During this reporting period, remediation continued to focus on the removal of 1,2-DCA. As a result, VES wells VS1 and VS2 were the primary extraction wells. From August 9th through December 6th, the SVE system did not operate because the liquid ring pump was being reconditioned.

Weekly visits are conducted by Pacific Edge to optimize system operating parameters, and collect monthly samples for laboratory analysis per permit requirements. Vapor measurements are made by Pilot Chemical using a flame ionization detector (FID) calibrated to read in parts per million as hexane. All samples collected for FID measurements or laboratory analysis are collected in Tedlar bags using a vacuum pump attached to the appropriate sample port. FID measurements are also made at extraction wells and periodically samples from the extraction wells are submitted to the laboratory



for analysis. Copies of laboratory analytical reports for samples analyzed during this reporting period are provided as Appendix D.

Operational data is monitored during each O&M visit and recorded on logs kept at the Site. Copies of the logs for this reporting period are provided as Appendix E.

4.3 CONTAMINANT REMOVAL ESTIMATE

The table below summarizes the length of time each well has been operated and the estimated pounds of contaminants extracted from each well.

CONTAMINANT REMOVAL ESTIMATE

Well I.D.	Elapsed Time Reporting Period (days) ^A	Total Elapsed Time (days) ^B	DCA Mass Removed Reporting Period (lbs) ^C	Total DCA Removed (lbs) ^D	VOCs Mass Removed Reporting Period (lbs) ^E	Total VOCs Mass Removed (lbs) ^F
VS1	0	194.1	0	5.23	0	599.99
VS2	29	352.7	2.85	36.99	120.1	1,284.21
EW3	0	18.4	0	0	0	65.41
EW4	0	10.97	0	0	0	82.46
VD1	0	6.0	0	0	0	50.36
VD2	0	8.1	0	0	0	82.46
VD3	0	27.0	0	0.2	0	69.92
VD4	0	5.8	0	0	0	12.21
VD5	0	1.9	0	0	0	2.53
VD6	0	28.9	0	0.15	0	50.29
VD7	0	2.1	0	0.03	0	2.17

Wells in bold indicate that DCA has been detected in extracted vapors.

A number of days operated during July 10, 2007 through December 11, 2007 reporting period.

B total number of days operated since system start up on January 24, 2006

C estimated total pounds of DCA removed during current reporting period.

D estimated total pounds of DCA removed since system start up.

E estimated total pounds of VOCs (including DCA) removed during current reporting period.

F estimated total pounds of VOCs (including DCA) removed since system start up.



Operational data presented in Table 3 was used to estimate the pounds of Volatile Organic Compounds (VOCs) and DCA removed during the reporting period and the total pounds removed since system startup.

Graph 1 illustrates the total cumulative pounds of VOCs and DCA removed since system startup. Graph 2 presents the total pounds of VOCs removed by each extraction well since system startup. Graph 3 presents the total pounds of DCA removed by each extraction well since startup.

4.4 PLANNED REMEDIATION

The SVE system will continue to operate and focus on DCA remediation. Anticipated wells to be operated during the next reporting period are VS1 and VS2. The remaining wells will be eliminated from further remediation until remediation efforts focus on TEX contamination.

The next planned remediation progress report is scheduled for inclusion in the April 2008 Semi-Annual Groundwater Monitoring Report.



Figures

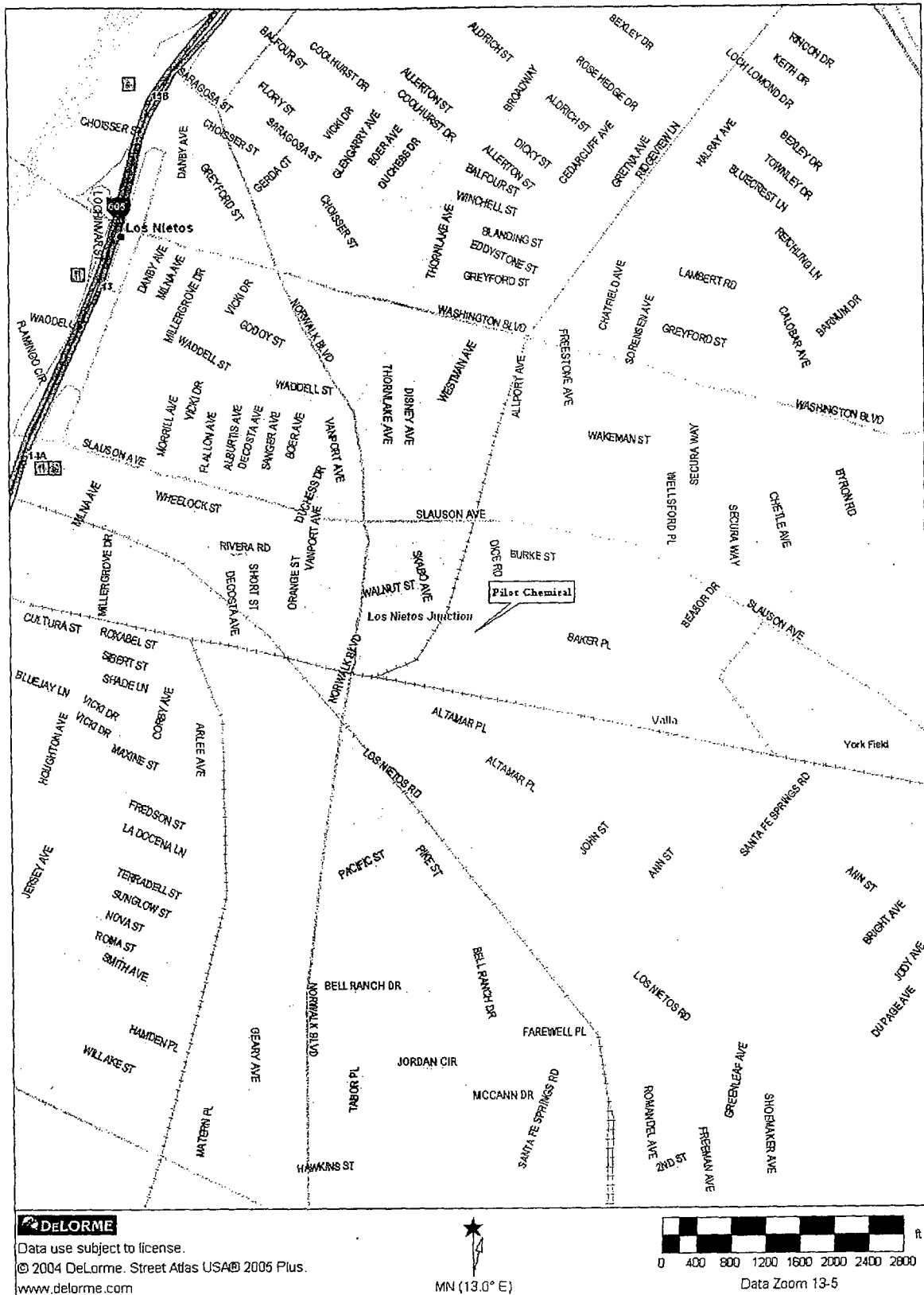


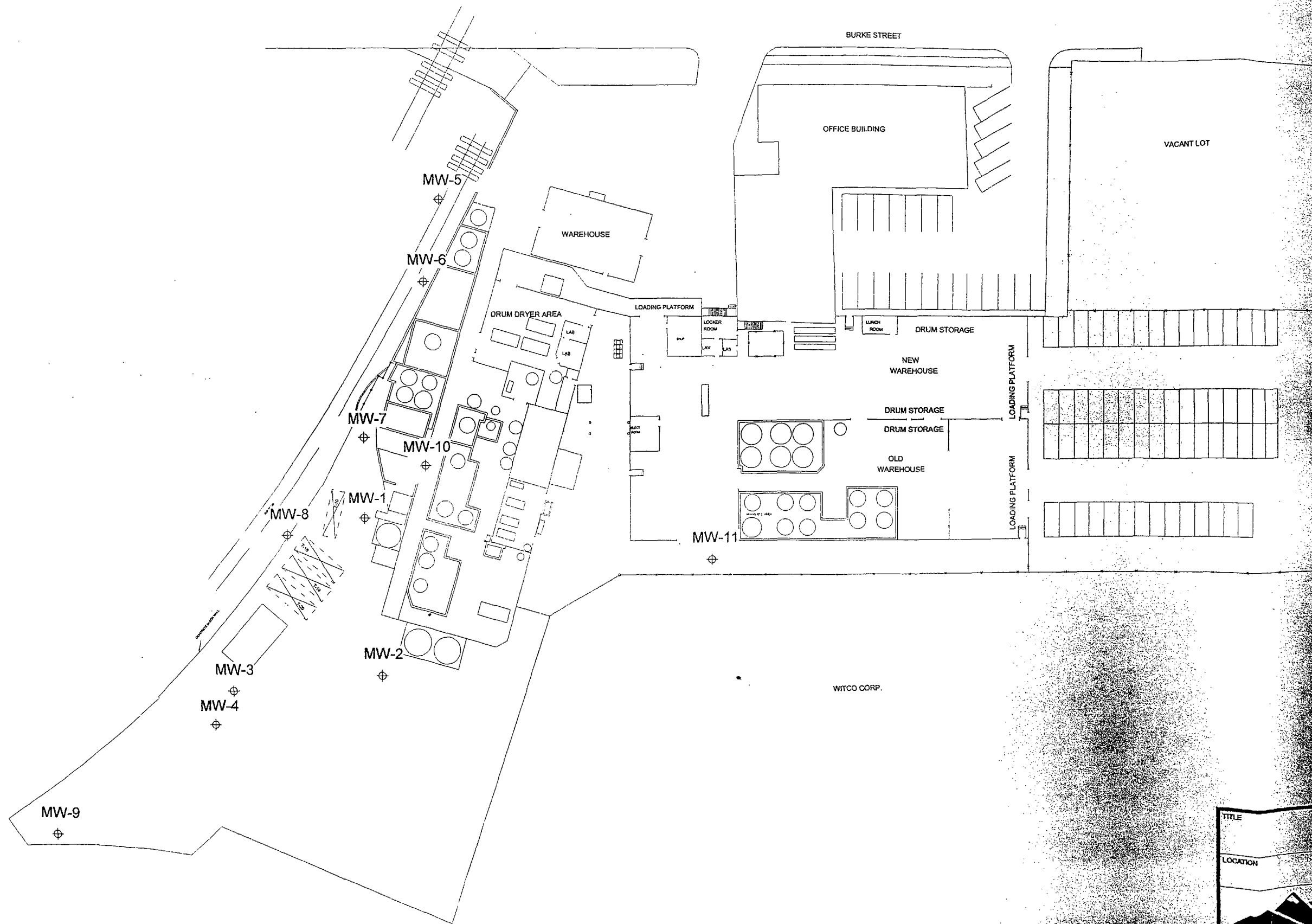
PACIFIC EDGE ENGINEERING

(949) 470-1937; (949) 470-0943 (FAX)

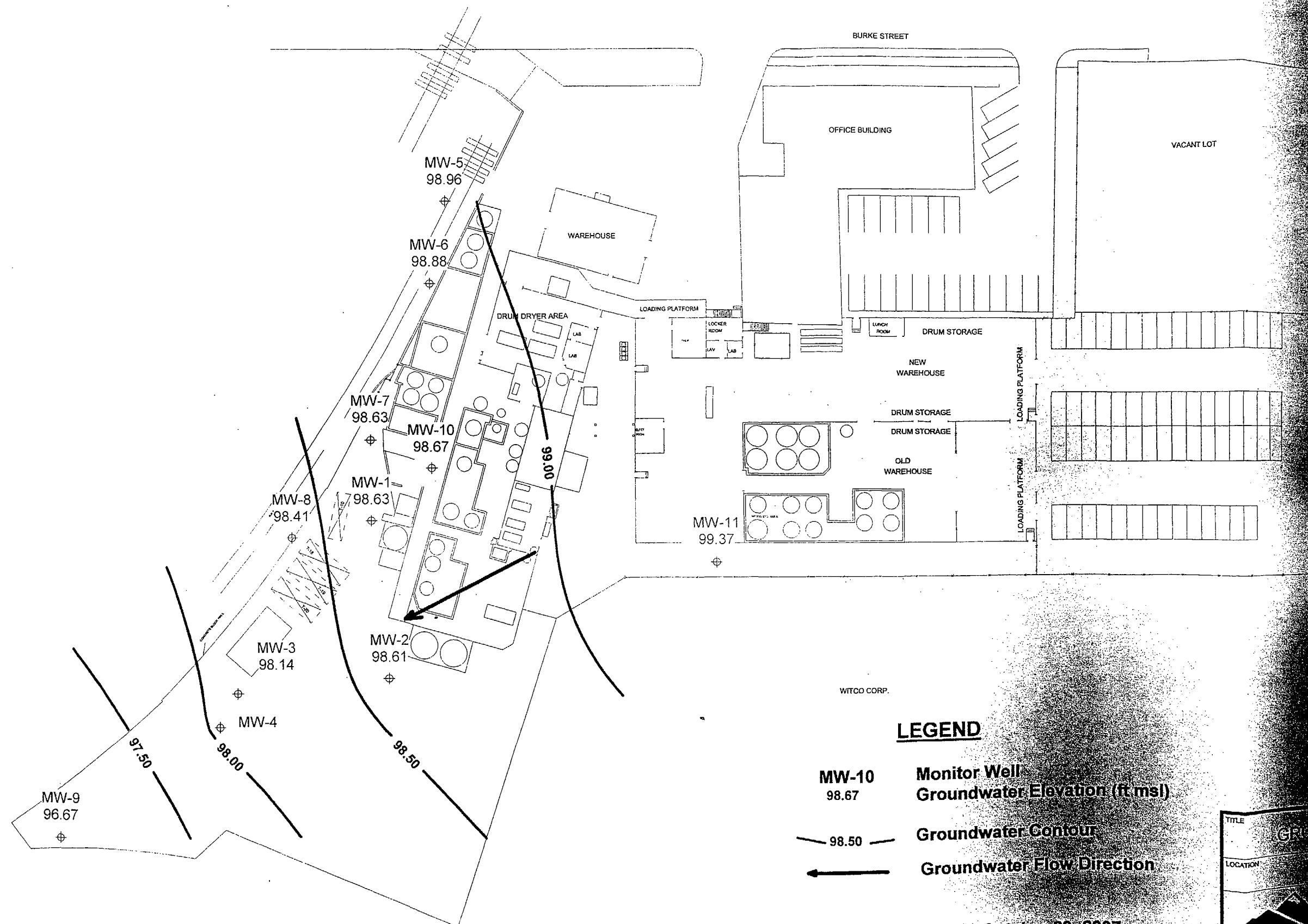
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Figure 1
Site Location Map





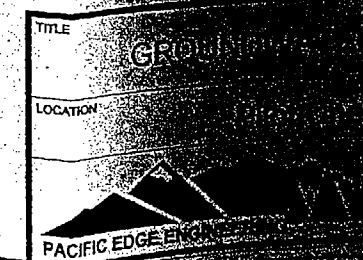
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LOCATION		Pilot Chemical Company	
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		DRAWN BY	DATE
		FIGURE: 2	

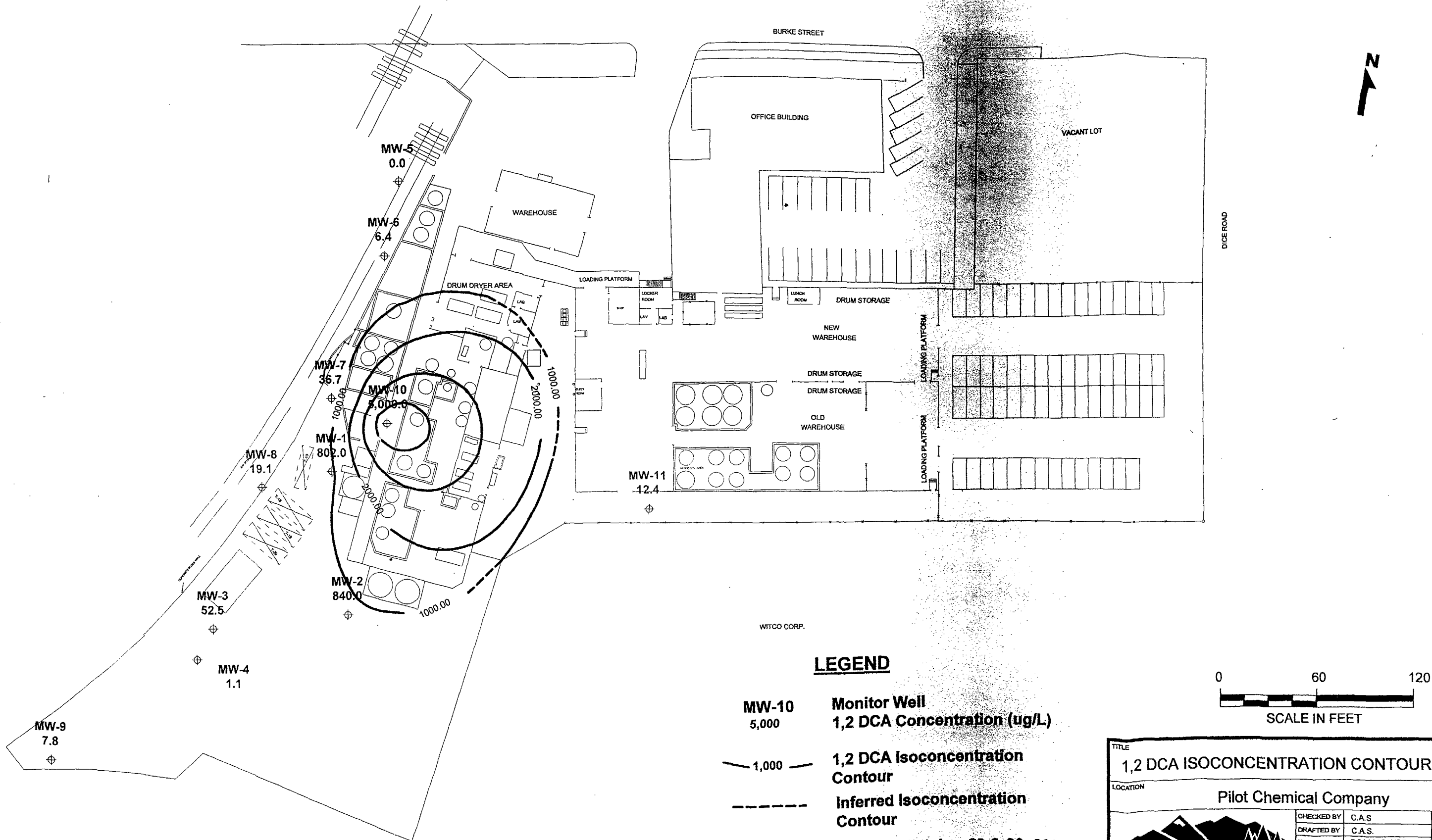



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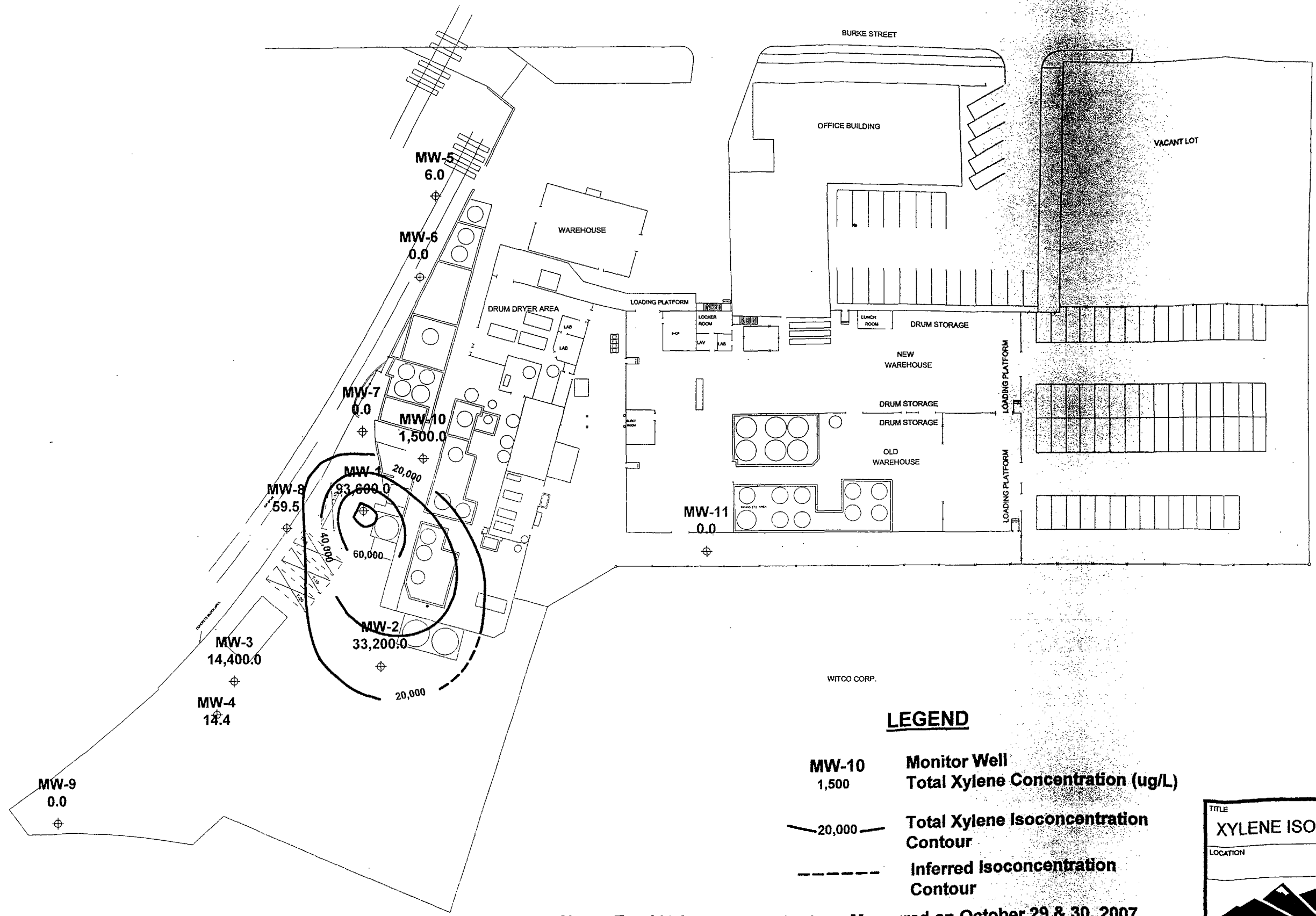
- MW-10 98.67 Monitor Well Groundwater Elevation (ft msl)
- 98.50 — Groundwater Contour
- ← Groundwater Flow Direction

Note: Groundwater Elevations Measured on October 29, 2007





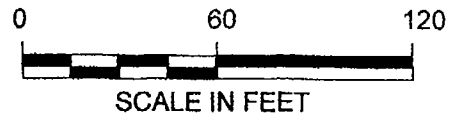
TITLE 1,2 DCA ISOCONCENTRATION CONTOUR PLOT		FIGURE: 4
LOCATION Pilot Chemical Company		
 PACIFIC EDGE ENGINEERING	CHECKED BY C.A.S	
	DRAFTED BY C.A.S.	
	FILE NAME DCA0605.WOR	
	DATE 12/10/07	



LEGEND

- MW-10 1,500 Monitor Well Total Xylene Concentration (ug/L)
- 20,000 — Total Xylene Isoconcentration Contour
- - - - - Inferred Isoconcentration Contour

Note: Total Xylene Concentrations Measured on October 29 & 30, 2007.



TITLE XYLENE ISOCONCENTRATION CONTOUR PLOT	
LOCATION Pilot Chemical Company	
CHECKED BY: C.A.S.	FIGURE: 5
DRAFTED BY: C.A.S.	
FILE NAME: XYL.WOR	
DATE: 12/10/07	

PACIFIC EDGE ENGINEERING

FIGURE 6
SVE WELL LOCATIONS
PILOT CHEMICAL COMPANY
SANTA FE SPRINGS, CALIFORNIA

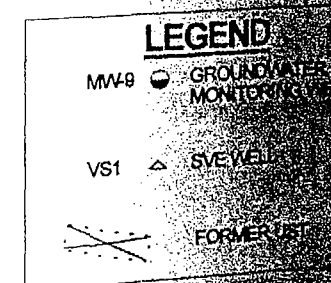
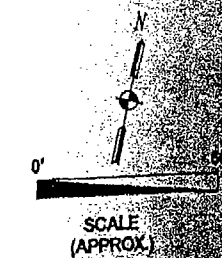
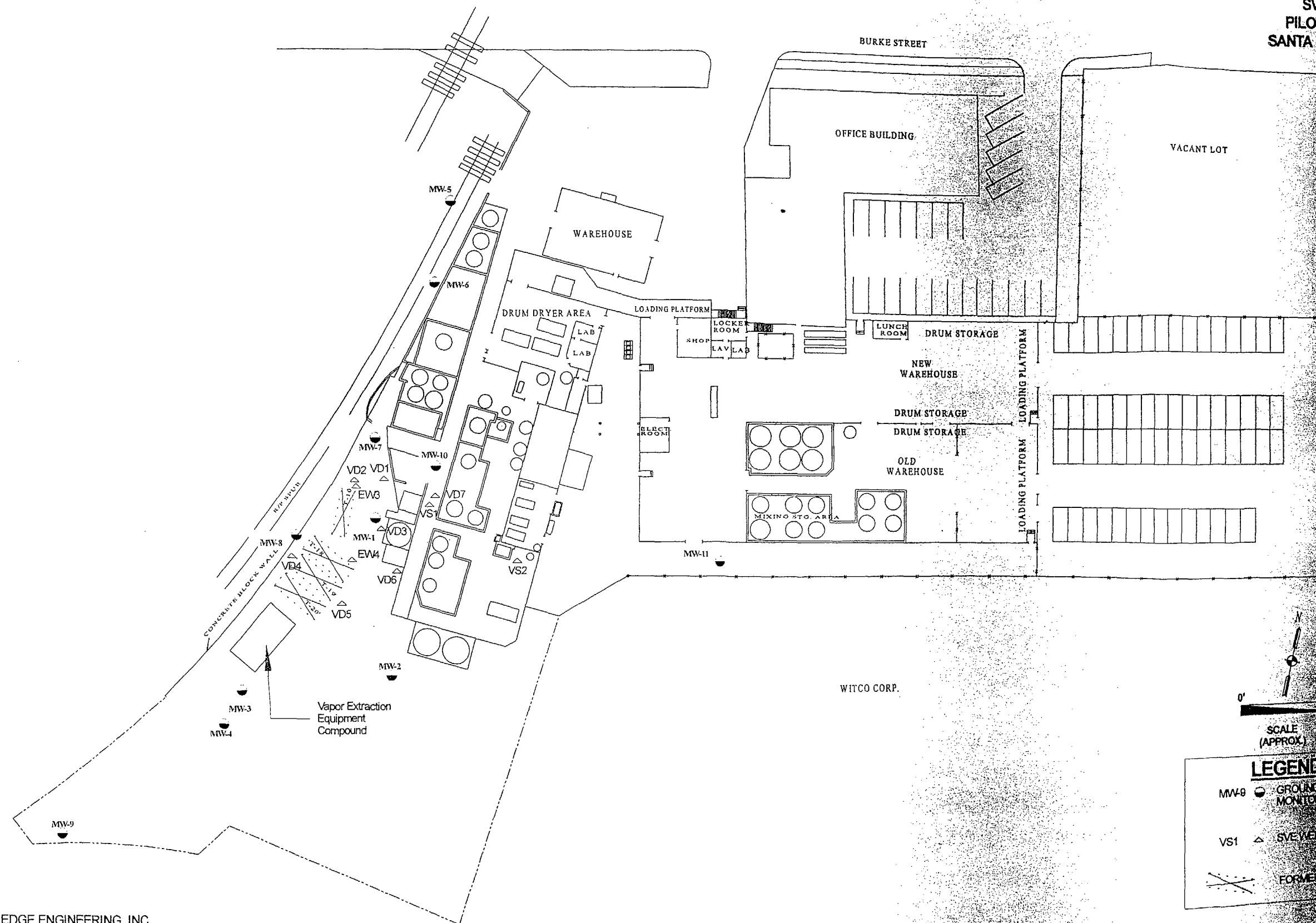


TABLE 2
HISTORICAL GROUNDWATER ANALYTICAL RESULTS
PILOT CHEMICAL COMPANY
SANTA FE SPRINGS, CALIFORNIA

Monitoring Well	Date	TPH (mg/L)	pH units	MBAS (mg/L)	1,1-DCA (ug/L)	1,1-DCE (ug/L)	PCE (ug/L)	Carbon Tetrachloride (ug/L)	Chloroform (ug/L)	1,2-DCA (ug/L)	TCE (ug/L)	Benzene (ug/L)	Ethylbenzene (ug/L)	Toluene (ug/L)	Total Xylenes (ug/L)
MW-1	Apr-91		7.39	0.80				NA ¹	NA	NA	NA	ND ² (2,500) ³	3,600	18,000	12,000
	Jan-94		7.0	0.90				ND (500)	ND (500)	ND (500)	ND (500)	ND (500)	9,700	52,000	59,000
	Apr-94		7.5	6.0	ND (25)		ND (25)	ND (25)	68	910	ND (25)	ND (5,000)	29,000	220,000	130,000
	Jul-94		7.2	7.5	ND (20)		ND (20)	28	48	870	ND (20)	ND (5,000)	9,300	26,000	40,000
	Nov-94		NA	NA	NA		NA	NA	NA	NA	NA	NA	NA	NA	NA
	Jun-95	NA	NA	NA	NA		NA	NA	NA	NA	NA	NA	NA	NA	NA
	Sep-95	15.0	7.0	60	ND (250)	ND (250)	ND (250)	ND (250)	ND (250)	4,200	ND (250)	ND (250)	48,000	56,000	319,000
	Dec-95	7.2	7.2	170	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	2,600	ND (50)	ND (5,000)	40,000	55,000	224,000
	Mar-96	16.0	7.1	29	ND (250)	ND (250)	ND (250)	ND (250)	ND (250)	3,200	ND (250)	ND (5,000)	58,000	85,000	282,000
	Jan-97	15.0	6.95	72	ND (50)	ND (50)	ND (50)	ND (50)	51	3,700	ND (50)	ND (5,000)	34,000	96,000	200,000
	Apr-97	19.0	7.11	25	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	3,300	ND (50)	ND (5,000)	48,000	73,000	310,000
	Oct-97	6.5	6.85	33	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	3,700	ND (50)	52	23,000	65,000	110,000
	May-98	7.9	7.01	18	ND (250)	ND (250)	ND (250)	ND (250)	ND (250)	2,200	ND (250)	ND (250)	35,000	110,000	200,000
	Nov-98	ND (1.0)	7.1	400	ND (250)	ND (250)	ND (250)	ND (250)	ND (250)	2,700	ND (250)	ND (250)	47,000	44,000	340,000
	Aug-99	ND(0.5)	7.25	11.9	ND (25)	ND (25)	ND (25)	ND (25)	ND (25)	760	ND (25)	68	20,200	57,000	85,300
	Dec-99	ND(0.5)	7.00	5.72	ND (250)	ND (250)	ND (250)	ND (250)	ND (250)	700	ND (250)	ND (250)	19,800	71,000	96,900
	Apr-00	ND(0.5)	7.21	6.22	ND (500)	ND (500)	ND (500)	ND (500)	736.0	670	ND (500)	ND (500)	22,600	71,300	116,500
	Oct-00	ND(0.5)	7.19	4.75	568.0	ND (500)	ND (500)	ND (500)	ND (500)	ND (500)	ND (500)	ND (500)	23,100	77,500	74,100
	Apr-01	ND(0.5)	7.23	4.40	ND (500)	ND (500)	ND (500)	ND (500)	243J	430J	ND (500)	ND (500)	15,800	51,100	51,300
	Oct-01	ND (0.5)	7.15	5.57	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	138,000	227,000
	Apr-02	ND (0.5)	7.15	8.60	ND (500)	ND (500)	ND (500)	ND (500)	ND (500)	ND (500)	ND (500)	ND (500)	16,900	56,100	91,900
	Oct-02	ND (0.5)	7.06	9.70	ND (500)	ND (500)	ND (500)	ND (500)	ND (500)	500	ND (500)	ND (500)	24,200	84,800	129,000
	Apr-03	ND (0.5)	7.06	36.70	ND (500)	ND (500)	ND (500)	ND (500)	ND (500)	ND (500)	ND (500)	ND (500)	15,300	52,300	84,400
	Oct-03	ND (0.5)	7.08	42.5	ND (250)	ND (250)	ND (250)	ND (250)	ND (250)	ND (250)	ND (250)	ND (250)	ND (250)	52,000	89,500
	May-04	38.7	6.97	48.9	ND (1,250)	ND (1,250)	ND (1,250)	ND (1,250)	ND (1,250)	ND (1,250)	ND (1,250)	ND (1,250)	31,500	95,000	178,000
	Oct-04	4.9	7.32	7.16	ND (200)	ND (200)	ND (200)	ND (200)	ND (200)	240	ND (200)	ND (200)	8,640	24,200	52,000
	Apr-05	1.0	7.13	7.13	ND (250)	ND (250)	ND (250)	ND (250)	ND (250)	1000	ND (250)	ND (250)	19,000	51,500	109,000
	Nov-05	0.7	6.95	5.28	ND (250)	ND (250)	ND (250)	ND (250)	ND (250)	2400	ND (250)	195.0 J	15,600	65,000	105,000
	May-06	0.9	N/A	2.40	ND (250)	ND (250)	ND (250)	ND (250)	84J	450	ND (250)	ND (250)	ND (250)	35,400	66,800
	Oct-06	ND (0.17)	7.17	4.03	ND (48)	ND (46)	ND (93)	ND (62)	161J	358J	ND (46)	ND (64)	11,900	40,300	69,500
	May-07	ND (0.17)	7.13	8.58	ND (24)	ND (23)	ND (46)	ND (31)	ND (31)	400	ND (23)	ND (32)	8,350	26,800	46,300
	Oct-07	0.73	7.03	8.73	ND (48)	ND (46)	ND (93)	ND (62)	ND (62)	802	60J	ND (64)	16,100	57,100	93,600
MW-2	Apr-91		7.29	0.20				NA	NA	NA	NA	ND (500)	970	7,500	4,000
	Jan-94		7.3	1.50				ND (130)	ND (130)	ND (130)	ND (130)	ND (130)	590	1,700	3,500
	Apr-94		7.7	1.20	ND (5)		ND (5)	ND (5)	ND (5)	400 ⁴	ND (5)	ND (500)	12,000	29,000	47,600
	Jul-94		7.7	11	ND (20)		ND (20)	ND (20)	ND (20)	360	ND (20)	ND (250)	13,000	12,000	20,600
	Nov-94		6.7	0.68	ND (1,330)		ND (1,330)	ND (1,330)	ND (1,330)	1,600	ND (1,330)	ND (1,300)	9,300	73,000	44,000
	Jun-95	ND (0.5)	7.2	6.70	ND (50)		ND (50)	ND (50)	1,800	ND (50)	ND (50)	ND (5,000)	3,700	61,000	27,800
	Sep-95	0.70	7.1	11	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	2,300	ND (500)	ND (50)	2,300	29,000	12,600
	Dec-95	0.77	7.2	11	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	1,600	ND (50)	ND (500)	9,200	86,000	41,700
	Mar-96	ND (0.5)	7.3	8.20	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	1,300	ND (50)	ND (500)	6,200	41,000	22,400
	Jan-97	1.3	6.82	69	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	4,400	ND (50)	ND (5,000)	14,000	140,000	81,000
	Apr-97	1.9	6.94	1.90	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	3,900	ND (50)	ND (5,000)	13,000	140,000	87,000
	Oct-97	0.94	6.70	0.53	ND (500)	ND (500)	ND (500)	ND (500)	ND (500)	5,500	ND (500)	ND (500)	15,000	180,000	63,000
	May-98	0.43	7.03	1.10	ND (500)	ND (500)	ND (500)	ND (500)	ND (500)	1,600	ND (500)	ND (500)	6,100	120,000	30,000
	Nov-98	1.0	7.2	38	ND (250)	ND (250)	ND (250)	ND (250)	ND (250)	1,900	ND (250)	ND (250)	8,500	62,000	44,000
	Aug-99	ND (0.5)	6.97	13.8	ND (25)	ND (25)	ND (25)	ND (25)	ND (25)	2,500	ND (25)	ND (25)	6,600	46,500	28,700
	Dec-99	ND (0.5)	7.10	1.75	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	1,970	ND (50)	ND (50)	5,260	39,300	23,800
	Apr-00	ND (0.5)	7.14	2.79	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	1,450	ND (50)	ND (50)	4,300	31,900	19,820
	Oct-00	ND (0.5)	7.04	3.52	3,270	ND (500)	ND (500)	ND (500)	ND (500)	ND (500)	ND (500)	ND (500)	10,500	81,800	30,500
	Apr-01	ND (0.5)	7.22	3.95	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	574	ND (50)	ND (50)	3,360	20,000	9,310
	Oct-01	ND (0.5)	7.03	0.32	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	1,870	ND (0.5)	ND (0.5)	ND (0.5)	94,100	7,260
	Apr-02	ND (0.5)	7.02	6.68	ND (1,000)	ND (1,000)	ND (1,000)	ND (1,000)	ND (1,000)	1,374	ND (1,000)	ND (1,000)	6,230	52,500	34,800
	Oct-02	ND (0.5)	6.78	9.99	ND (500)	ND (500)	ND (500)	ND (500)	ND (500)	3,660	ND (500)	ND (500)	12,600	107,000	63,500
	Apr-03	ND (0.5)	6.97	20.80	ND (500)	ND (500)	ND (500)	ND (500)	ND (500)	2,080	ND (500)	ND (500)	5,710	47,400	27,600
	Oct-03	ND (0.5)	6.89	30.20	ND (250)	ND (250)	ND (250)	ND (250)	ND (250)	2,200	ND (250)	ND (250)	6,800	55,500	33,400
	May-04	ND (0.5)	7.20	4.72	ND (250)	ND (250)	ND (250)	ND (250)	ND (250)	650	ND (250)	ND (250)	5,500	35,400	25,500
	Oct-04	ND (0.5)	7.49	0.686	ND (250)	ND (250)	ND (250)	ND (250)	ND (250)	505	ND (250)	ND (250)	4,240	26,400	23,100
	Apr-05	ND (0.5)	7.05	6.89	ND (250)	ND (250)	ND (250)	ND (250)	ND (250)	1400	ND (250)	ND (250)	6,900	40,700	32,800
	Nov-05	ND (0.5)	7.14	2.90	ND (250)	ND (250)	ND (250)	ND (250)	ND (250)	2850	ND (250)	190.0 J	6,150	41,000	34,500
	May-06	ND (0.5)	N/A	2.93	ND (50)	ND (50)	ND (50)	ND (50)	9J	884	ND (50)	ND (50)	3,750	17,800	16,800
	Oct-06	ND (0.17)	7.09	3.89	ND (24)	ND (23)	ND (46)	ND (31)	110J	1780	ND (23)	ND (32)	8,350	54,000	39,900
	Apr-07	ND (0.17)	7.18	ND (0.025)	ND (12)	ND (11)	ND (23)	ND (15)	ND (15)	1,290	ND (11)	ND (16)	ND (18)	23,100	19,900
	Oct-07	ND (0.5)	6.57	1.36	ND (24)	ND (23)	ND (46)	ND (31)	ND (31)	840	ND (23)	ND (32)	7,000	45,000	33,200

TABLE 2
HISTORICAL GROUNDWATER ANALYTICAL RESULTS
PILOT CHEMICAL COMPANY
SANTA FE SPRINGS, CALIFORNIA

Monitoring Well	Date	TPH (mg/L)	pH units	MBAS (mg/L)	1,1-DCA (ug/L)	1,1-DCE (ug/L)	PCE (ug/L)	Carbon Tetrachloride (ug/L)	Chloroform (ug/L)	1,2-DCA (ug/L)	TCE (ug/L)	Benzene (ug/L)	Ethylbenzene (ug/L)	Toluene (ug/L)	Total Xylenes (ug/L)
MW-3	Apr-91		7.17	2.00				NA	NA	NA	NA	ND (13,000)	14,000	110,000	52,000
	Jan-94		6.9	1.10				ND (500)	ND (500)	ND (500)	ND (500)	ND (500)	15,000	24,000	68,000
	Apr-94		7.4	6.60	ND (5)		ND (5)	9.2	5.1	16	ND (5)	ND (500)	14,000	21,000	25,500
	Jul-94		7.0	10	ND (20)		ND (20)	ND (20)	ND (20)	ND (20)	ND (20)	ND (100)	6,500	2,800	2,360
	Nov-94		6.7	0.46	ND (250)		ND (250)	ND (250)	ND (250)	ND (250)	ND (250)	ND (250)	11,000	12,000	8,900
	Jun-95	ND(0.5)	7.0	5	ND (0.5)		ND (0.5)	ND (0.5)	ND (0.5)	19	ND (0.5)	ND (500)	7,800	7,400	6,900
	Sep-95	0.65	6.9	11	ND (5)	ND (5)	ND (5)	15	ND (5)	52	ND (5)	8.2	7,200	1,200	15,500
	Dec-95 ⁵	0.88	7.1	5	ND (5)	ND (5)	ND (5)	28	13	220	ND (5)	ND (500)	3,900	47,000	44,900
	Mar-96	0.93	7.2	9.20	ND (5)	ND (5)	8.7	14	7.8	26	ND (5)	ND (500)	10,000	21,000	29,800
	Jan-97	0.76	7.03	14	ND (5)	ND (5)	ND (5)	7.0	6.4	25.0	ND (5)	ND (500)	11,000	12,000	32,000
	Apr-97	1.70	6.85	9	ND (0.5)	ND (0.5)	ND (0.5)	5.1	2.4	38.0	1.2	8.7	5,300	2,800	5,600
	Oct-97	0.34	6.86	6.90	ND (13)	ND (13)	ND (13)	ND (13)	ND (13)	130	ND (13)	ND (13)	6,800	4,400	5,000
	May-98	ND (0.5)	7.23	1.50	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	460	1,100	1,800
	Nov-98	0.68	7.20	4.10	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	77	ND (50)	ND (50)	4,600	15,000	20,000
	Aug-99	ND (0.5)	7.26	3.30	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	72	ND (5)	ND (5)	2,730	5,210	9,480
	Dec-99	ND (0.5)	7.30	2.11	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	70	ND (50)	ND (50)	3,100	12,200	10,720
	Apr-00	ND (0.5)	7.28	2.77	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	155	ND (50)	ND (50)	5,600	25,800	20,830
	Oct-00	ND (0.5)	7.33	2.16	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	51	ND (50)	ND (50)	4,620	11,000	11,100
	Apr-01	ND (0.5)	7.34	1.28	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	45J	ND (50)	ND (50)	4,670	7,340	11,680
	Oct-01	ND (0.5)	7.32	1.32	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	18,200	35,500
	Apr-02	ND (0.5)	7.08	3.03	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	3,170	10,300	15,900
	Oct-02	ND (0.5)	7.11	3.02	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	4,030	7,670	13,700
	Apr-03	ND (0.5)	7.20	2.41	ND (250)	ND (250)	ND (250)	ND (250)	ND (250)	ND (250)	ND (250)	ND (250)	7,400	12,400	32,700
	Oct-03	ND (0.5)	7.21	3.69	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	55.0	ND (50)	ND (50)	3,610	8,000	14,500
	May-04	ND (0.5)	7.16	4.61	ND (100)	ND (100)	ND (100)	ND (100)	ND (100)	140.0	ND (100)	ND (100)	5,280	14,000	19,800
	Oct-04	ND (0.5)	7.80	0.914	ND (100)	ND (100)	ND (100)	ND (100)	ND (100)	ND (100)	ND (100)	ND (100)	2,240	4,080	9,060
	Apr-05	ND (0.5)	7.04	3.07	ND (100)	ND (100)	ND (100)	ND (100)	ND (100)	120	ND (100)	ND (100)	6,080	6,220	21,900
	Nov-05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	May-06	ND (0.5)	NA	1.65	ND	ND (50)	ND (50)	ND (50)	13J	18J	ND (50)	ND (50)	2,390	3,250	7,510
	Oct-06	ND (0.17)	7.16	1.15	ND (4.0)	ND (4.0)	ND (9.0)	ND (6.0)	27.6J	33.6J	ND (4.0)	ND (6.0)	3,670	4,670	11,800
	Apr-07	ND (0.17)	7.18	ND (0.025)	ND (2.4)	ND (2.3)	ND (4.0)	ND (3.1)	6.4J	32.5	ND (2.3)	ND (3.2)	2,600	3,820	8,980
	Oct-07	ND (0.5)	6.67	1.95	ND (12)	ND (11)	ND (23)	ND (15)	ND (15)	52.5J	ND (11)	ND (16)	4,250	8,900	14,400
MW-4	Apr-91		NA	NA				NA	NA	NA	NA	NA	NA	NA	NA
	Jan-94		7.2	ND (0.5)				ND (0.5)	ND (0.5)	ND (0.5)	1.4	ND (0.5)	7.5	29	31
	Apr-94		7.5	0.058	ND (0.5)		ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	2.5	ND (5)	37	210	116
	Jul-94		7.3	1.60	ND (0.5)		1.0	ND (0.5)	ND (0.5)	ND (0.5)	5.4	ND (0.5)	13	52	33
	Nov-94		6.8	0.10	ND (5)		ND (5)	ND (5)	ND (5)	6.8	ND (5)	ND (5)	83	200	180
	Jun-95	ND(0.5)	7.3	0.04	ND(0.5)		0.91	ND (0.5)	ND (0.5)	2.7	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
	Sep-95	0.58	7.0	0.66	0.82	ND (0.5)	0.98	ND (0.5)	ND (0.5)	2.1	3.1	6.0	66	180	154
	Dec-95	0.82	7.2	2.10	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	76	6.2	ND (500)	9,200	19,000	38,100
	Mar-96 ⁷	ND (0.5)	7.4	0.21	ND (0.5)	ND (0.5)	4.8	1.20	ND (0.5)	11	1.2	ND (0.5)	54 ⁴	110 ⁴	196 ⁴
	Jan-97	ND (0.5)	6.95	ND (.10)	0.52	ND (0.5)	1.2	ND (0.5)	ND (0.5)	27	2.3	ND (5)	49	51	330
	Apr-97	ND (0.05)	7.02	0.28	ND (0.5)	ND (0.5)	1.3	ND (0.5)	ND (0.5)	17	3.0	ND (0.5)	8.7	4.8	10
	Oct-97	ND (0.05)	6.6	0.15	ND (0.5)	ND (0.5)	1.3	ND (0.5)	ND (0.5)	21	3.1	ND (0.5)	28	19	26
	May-98	ND (0.05)	7.48	0.33	ND (0.5)	ND (0.5)	1.7	ND (0.5)	ND (0.5)	14	3.1	ND (0.5)	5.5	1.4	5.8
	Nov-98	ND (0.05)	7.4	0.27	ND (0.5)	ND (0.5)	1.4	0.78	0.56	8.4	2.2	ND (0.5)	270	49	93
	Aug-99	ND (0.5)	7.34	0.30	ND (0.5)	ND (0.5)	1.0	ND (0.5)	ND (0.5)	16.6	1.9	ND (0.5)	93.8	117	83.6
	Dec-99	ND (0.5)	7.41	0.23	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	10.9	2.2	ND (0.5)	6.9	ND (0.5)	3.5
	Apr-00	ND (0.5)	7.41	0.26	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	11.2	ND (0.5)	ND (0.5)	15.3	43	47
	Oct-00	ND (0.5)	7.39	0.25	ND (0.5)	ND (0.5)	1.1	ND (0.5)	ND (0.5)	1.4	2.1	ND (0.5)	43.4	21.4	17.7
	Apr-01	ND (0.5)	7.40	0.19	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	8.0	ND (5)	ND (5)	105.0	403.0	195.0
	Oct-01	ND (0.5)	7.38	ND (0.05)	ND (0.5)	ND (0.5)	1.0	ND (0.5)	ND (0.5)	ND (0.5)	1.0	ND (0.5)	ND (0.5)	ND (0.5)	2.5
	Apr-02	ND (0.5)	7.38	0.10	ND (0.5)	ND (0.5)	0.7	ND (0.5)	ND (0.5)	2.1	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (1.0)
	Oct-02	ND (0.5)	7.32	0.12	ND (0.5)	ND (0.5)	1.0	ND (0.5)	ND (0.5)	5.4	2.1	ND (0.5)	4.50	ND (0.5)	3.30
	Apr-03	ND (0.5)	7.34	0.11	ND (0.5)	ND (0.5)	1.1	ND (0.5)	ND (0.5)	ND (0.5)	2.9	ND (0.5)	ND (0.5)	32.70	26.80
	Oct-03	ND (0.5)	7.27	0.38	ND (0.5)	ND (0.5)	0.68	ND (0.5)	0.58	19.9	1.16	ND (0.5)	ND (0.5)	ND (0.5)	1.49
	May-04	ND (0.5)	7.28	0.55	ND (0.5)	ND (0.5)	1.00	ND (0.5)	ND (0.5)	27.9	2.20	ND (0.5)	ND (0.5)	ND (0.5)	ND (1.0)
	Oct-04	ND (0.5)	7.48	0.225	ND (0.5)	ND (0.5)	1.8	ND (0.5)	ND (0.5)	5.2	8.9	ND (0.5)	ND (0.5)	ND (0.5)	ND (1.0)
	Apr-05	ND (0.5)	7.38	0.14	ND (0.5)	ND (0.5)	1.6	ND (0.5)	ND (0.5)	7	11.3	ND (0.5)	38.6	32	204
	Nov-05	ND (0.5)	7.39	0.06	ND (0.5)	ND (0.5)	0.7	ND (0.5)	0.10 J	2.4	2.8	ND (0.5)	34	3	94.8
	May-06	ND (0.5)	N/A	ND (0.05)	ND (0.5)	ND (0.5)	0.65	ND (0.5)	0.24J	1.2	1.7	ND (0.5)	ND (0.5)	ND (0.5)	ND (1.0)
	Oct-06	ND (0.17)	7.43	ND (0.05)	ND (0.048)	ND (0.046)	ND (0.093)	ND (0.062)	0.18J	1.3	1.2	ND (0.064)	8.5	2.2	37.7
	Apr-07	ND (0.17)	7.40	ND (0.025)	ND (0.048)	ND (0.046)	0.52	ND (0.062)	0.08J	0.14J	1.1	ND (0.064)	ND (0.074)	ND (0.092)	8.0
	Oct-07	ND (0.5)	6.85	0.08J	ND (0.048)	ND (0.046)	0.70	ND (0.062)	0.15J	1.1	1.5	ND (0.064)	ND (0.074)	ND (0.092)	14.4

TABLE 2
HISTORICAL GROUNDWATER ANALYTICAL RESULTS
PILOT CHEMICAL COMPANY
SANTA FE SPRINGS, CALIFORNIA

Monitoring Well	Date	TPH (mg/L)	pH units	MBAS (mg/L)	1,1-DCA (ug/L)	1,1-DCE (ug/L)	PCE (ug/L)	Carbon Tetrachloride (ug/L)	Chloroform (ug/L)	1,2-DCA (ug/L)	TCE (ug/L)	Benzene (ug/L)	Ethylbenzene (ug/L)	Toluene (ug/L)	Total Xylenes (ug/L)
MW-5	Apr-91		7.28	0.2				NA	NA	NA	NA	3.2	ND (0.5)	1.2	ND (1)
	Jan-94		7.3	1.5				660	120	ND (10)	ND (10)	ND (10)	ND (10)	18	44
	Apr-94		7.6	0.57	ND (2.5)		ND (2.5)	470 ⁴	120	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)
	Jul-94		7.5	4.10	ND (5)		ND (5)	370 ⁴	98	88	ND (5)	ND (5)	110	370 ⁴	286
	Nov-94		7.3	0.95	ND (25)		ND (25)	900	320	26	ND (25)	ND (25)	ND (25)	35	ND (75)
	Jun-95	ND (0.5)	7.5	0.73	ND (5)		ND (5)	460 ⁴	230	ND (5)	ND (5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
	Sep-95 ⁶	ND (0.5)	7.4	1.7	ND (5)	ND (5)	ND (5)	520	280	ND (5)	ND (5)	ND (0.5)	14	61	50.5
	Dec-95	ND (0.5)	7.6	1.9	ND (500)	ND (500)	ND (500)	ND (500)	ND (500)	ND (500)	ND (500)	ND (500)	ND (500)	ND (500)	ND (500)
	Mar-96	ND (0.5)	7.7	1.4	ND (5)	ND (5)	ND (5)	340	160	ND (5)	ND (5)	ND (0.5)	3.5	3.6	16.5
	Jan-97	ND (0.5)	7.4	5	ND (5)	ND (5)	ND (5)	750	310	ND (5)	ND (5)	ND (0.5)	12	5.9	79
	Apr-97	0.29	7.38	4.8	ND (5)	ND (5)	ND (5)	930	330	ND (5)	ND (5)	ND (0.5)	ND (0.5)	2.8	4.6
	Oct-97 ¹⁰	0.56	7.2	1.1	ND (2.5)	ND (2.5)	7.7	1,400	560	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (7.5)
	May-98	ND (0.5)	7.47	0.81	ND (0.5)	ND (0.5)	3.3	490	120	ND (0.5)	2.3	ND (0.5)	1.0	0.86	5.2
	Nov-98	ND (0.5)	7.5	1.4	ND (0.5)	ND (0.5)	3.1	390	130	ND (0.5)	1.2	ND (0.5)	ND (0.5)	ND (0.5)	1.7
	Aug-99	ND (0.5)	7.34	2.37	ND (5)	ND (5)	ND (5)	483	218	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (10)
	Dec-99	ND (0.5)	7.37	1.36	ND (5)	ND (5)	ND (5)	385	137	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (10)
	Apr-00	ND (0.5)	7.40	1.00	ND (5)	ND (5)	ND (5)	316	126	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (10)
	Oct-00	ND (0.5)	7.42	1.02	ND (5)	ND (5)	11.0	179	82	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (10)
	Apr-01	ND (0.5)	7.45	1.18	ND (0.5)	ND (0.5)	4.2	199	97	ND (0.5)	1.50	ND (0.5)	ND (0.5)	ND (0.5)	ND (1)
	Oct-01	ND (0.5)	7.36	1.13	ND (0.5)	ND (0.5)	ND (0.5)	185	86	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (1.0)
	Apr-02	ND (0.5)	7.39	1.45	ND (2.5)	ND (2.5)	3.0	151	73	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (5.0)
	Oct-02	ND (0.5)	7.37	0.76	ND (5)	ND (5)	ND (5)	173	70	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (10)
	Apr-03	ND (0.5)	7.34	0.53	ND (0.55)	ND (0.5)	3.4	ND (0.5)	49	ND (0.5)	2.5	ND (0.5)	ND (0.5)	ND (0.5)	ND (1.0)
	Oct-03	ND (0.5)	7.35	1.73	ND (2.5)	ND (2.5)	3.4	1.84	82	ND (2.5)	.71J	ND (2.5)	.89J	ND (2.5)	1.1J
	May-04	ND (0.5)	7.37	0.25	ND (2.5)	ND (2.5)	2.5	70.0	34.5	6.0	2.5	ND (2.5)	ND (2.5)	ND (2.5)	ND (5.0)
	Oct-04	ND (0.5)	7.65	0.264	ND (0.5)	ND (0.5)	4.0	21.1	10.2	ND (0.5)	1.9	ND (0.5)	ND (0.5)	ND (0.5)	ND (1.0)
	Apr-05	ND (0.5)	7.37	0.81	ND (2.5)	ND (2.5)	5.0	72.0	47.0	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (5.0)
	Nov-05	ND (0.5)	7.37	0.37	ND (2.5)	ND (2.5)	4.0	67.5	47.0	ND (2.5)	1.8J	ND (2.5)	ND (2.5)	ND (2.5)	ND (5.0)
	May-06	ND (0.5)	N/A	0.31	ND (2.5)	ND (2.5)	3.5	45.4	36.5	ND (2.5)	1.7J	ND (2.5)	ND (2.5)	ND (2.5)	ND (5)
	Oct-06	ND (0.17)	7.43	0.29	ND (0.048)	ND (0.046)	0.72	8.9	6.5	ND (0.077)	0.27J	ND (0.064)	ND (0.074)	ND (0.092)	ND (0.059)
	May-07	ND (0.17)	7.45	0.13	0.10J	ND (0.046)	3.20	28.0	19.1	ND (0.077)	1.1	ND (0.064)	ND (0.074)	ND (0.092)	ND (0.059)
	Oct-07	ND (0.5)	7.37	0.39	ND (0.24)	ND (0.23)	4.00	78.0	41.0	ND (0.85)	1.6J	ND (0.42)	ND (0.37)	ND (0.46)	6
MW-6	Apr-91		7.27	ND (0.1)				NA	NA	NA	NA	0.61	ND (0.5)	ND (0.5)	ND (1)
	Jan-94		7.4	1.1				49	25	7.1	ND (1.3)	ND (1.3)	ND (1.3)	ND (1.3)	ND (3.8)
	Apr-94		7.6	1.4	ND (0.5)		0.74	39 ⁴	25 ⁴	ND (0.5)	1.4 ⁴	ND (0.5)	0.67	ND (0.5)	0.6
	Jul-94		7.6	0.7	ND (0.5)		0.65	38 ⁴	28	ND (0.5)	1.5	ND (0.5)	21	42 ⁴	50 ⁴
	Nov-94		7.5	1.4	ND (1.0)		ND (1.0)	38	21	7.9	1.0	ND (1.0)	6.7	30	22
	Jun-95	ND (0.5)	7.5	0.48	ND (5)		ND (5)	110	36	ND (5)	ND (5)	ND (0.5)	ND (0.5)	ND (0.5)	0.72
	Sep-95	ND (0.5)	7.5	1	ND (5)	ND (5)	ND (5)	150	66	13	ND (5)	ND (0.5)	26	89	17
	Dec-95	ND (0.5)	7.6	2.7	ND (500)	ND (500)	ND (500)	ND (500)	ND (500)	ND (500)	ND (500)	ND (500)	ND (500)	ND (500)	ND (500)
	Mar-96 ⁸	ND (0.5)	7.6	2.2	ND (0.5)	ND (0.5)	3.50	270	120	24	0.88	ND (0.5)	3.6	4.2	16.6
	Jan-97	ND (0.5)	7.56	2.5	ND (5)	ND (5)	ND (5)	81	99	14	ND (5)	ND (0.5)	ND (0.5)	ND (0.5)	4.1
	Apr-97	0.61	7.49	0.54	ND (5)	ND (5)	ND (5)	91	130	20	ND (5)	ND (0.5)	ND (0.5)	ND (0.5)	6.7
	Oct-97 ¹¹	0.21	7.03	3.1	ND (0.5)	ND (0.5)	1.3	55	210	33	0.65	ND (0.5)	ND (0.5)	ND (0.5)	3.4
	May-98 ¹²	0.17	7.43	0.81	ND (0.5)	ND (0.5)	2.3	130	47	ND (0.5)	4.5	ND (0.5)	2.4	0.6	8.3
	Nov-98	0.45	7.4	2	ND (0.5)	ND (0.5)	2.6	81	79	21	1.7	0.65	ND (0.5)	ND (0.5)	ND (1.5)
	Aug-99	ND (0.5)	7.21	4.46	ND (2.5)	ND (2.5)	ND (2.5)	183	143	36	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (5)
	Dec-99	ND (0.5)	7.31	1.57	ND (5)	ND (5)	ND (5)	291	177	23	ND (5)	ND (5)	ND (5)	ND (5)	ND (10)
	Apr-00	ND (0.5)	7.36	2.67	ND (0.5)	ND (0.5)	2.00	105	76	15.9	1.30	ND (0.5)	ND (0.5)	ND (0.5)	ND (1.0)
	Oct-00	ND (0.5)	7.38	1.76	ND (0.5)	ND (0.5)	2.10	48.6	47.4	14.9	1.50	ND (0.5)	ND (0.5)	ND (0.5)	ND (1.0)
	Apr-01	ND (0.5)	7.40	1.47	ND (0.5)	ND (0.5)	2.50	40.7	50.1	16.4	1.50	ND (0.5)	ND (0.5)	ND (0.5)	ND (1.0)
	Oct-01 ¹⁹	ND (0.5)	7.30	2.80	ND (0.5)	ND (0.5)	23.0	111.0	90.0	20.0	302.0	ND (0.5)	ND (0.5)	ND (0.5)	ND (1.0)
	Apr-02	ND (0.5)	7.33	1.70	ND (0.5)	ND (0.5)	2.0	26.4	27.0	9.1	1.0	ND (0.5)	ND (0.5)	ND (0.5)	ND (1.0)
	Oct-02	ND (0.5)	7.31	1.30	ND (2.5)	ND (2.5)	ND (2.5)	60.0	48.0	8.0	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (5)
	Apr-03	ND (0.5)	7.34	0.77	ND (0.5)	ND (0.5)	2.7	37.3	34.9	ND (0.5)	2.4	ND (0.5)	ND (0.5)	ND (0.5)	ND (1.0)
	Oct-03	ND (0.5)	7.32	2.88	ND (2.5)	ND (2.5)	2.3J	77.0	71.0	11.0	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (5.0)
	May-04	ND (0.5)	7.39	1.02	ND (2.5)	ND (2.5)	ND (2.5)	103.0	70.0	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (5.0)
	Oct-04	ND (0.5)	7.56	0.393	ND (0.5)	ND (0.5)	0.9	17.2	13.8	ND (0.5)	1.0	ND (0.5)	ND (0.5)	ND (0.5)	ND (1.0)
	Apr-05	ND (0.5)	7.37	0.79	ND (2.5)	ND (2.5)	ND (2.5)	22.0	22.5	5	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (5.0)
	Nov-05	ND (0.5)	7.31	1.29	ND (2.5)	ND (2.5)	5.7	24.0	39.0	ND (2.5)	1.6J	ND (2.5)	ND (2.5)	ND (2.5)	ND (5.0)
	May-06	ND (0.5)	N/A	0.51	ND (0.5)	0.41J	6.8	14.0	18.0	7.9	1.7	ND (0.5)	ND (0.5)	ND (0.5)	ND (1.0)
	Oct-06	ND (0.17)	7.36	0.62	0.078J	0.54	11.9	9.6	19.6	9.3	1.82	ND (0.064)	ND (0.074)	ND (0.092)	ND (0.06)
	May-07	ND (0.17)	7.39	0.17	ND (0.48)	0.2J	5.2	9.4	11.2	4.6	1.20	ND (0.064)	ND (0.074)	ND (0.092)	ND (0.059)
	Oct-07	ND (0.5)	7.36	0.76	ND (0.048)	0.26J	7.1	23.6	26.4	6.4	2.00	ND (0.064)	ND (0.074)	ND (0.092)	ND (0.059)

TABLE 2
HISTORICAL GROUNDWATER ANALYTICAL RESULTS
PILOT CHEMICAL COMPANY
SANTA FE SPRINGS, CALIFORNIA

Monitoring Well	Date	TPH (mg/L)	pH units	MBAS (mg/L)	1,1-DCA (ug/L)	1,1-DCE (ug/L)	PCE (ug/L)	Carbon Tetrachloride (ug/L)	Chloroform (ug/L)	1,2-DCA (ug/L)	TCE (ug/L)	Benzene (ug/L)	Ethylbenzene (ug/L)	Toluene (ug/L)	Total Xylenes (ug/L)
MW-7	Apr-91		7.44	ND (0.1)				NA	NA	NA	NA	ND (2)	4.7	6.1	ND (4)
	Jan-94		6.9	ND (0.5)				11	11	24	2.6	ND (0.5)	ND (0.5)	ND (0.5)	ND (1.5)
	Apr-94		7.5	0.53	ND (0.5)		ND (0.5)	8.9 ⁴	11	494	1.6	ND (0.5)	1.6	4.7	3.76
	Jul-94		7.4	1.2	ND (0.5)		ND (0.5)	7.4	6.6	54	1.6	ND (0.5)	9.2	22	27.5
	Nov-94		6.8	1.5	ND (25)		ND (25)	51	44	1,100	ND (25)	ND (25)	ND (25)	420	100
	Jun-95	ND (0.5)	7.4	0.17	ND (0.5)		ND (0.5)	4.6	6.6	68 ⁴	ND (0.5)	ND (5)	200	230	520
	Sep-95	ND (0.5)	7.4	0.5	ND (0.5)	ND (0.5)	0.61	8.8	8.8	65	2.6	ND (0.5)	30	26	32.2
	Dec-95	ND (0.5)	7.6	3.8	ND (5)	ND (5)	ND (5)	18	11	310	ND (5)	ND (5)	51	7.0	32
	Mar-96	ND (0.5)	7.6	2.1	ND (0.5)	ND (0.5)	3.3	1.9	18	110	0.97	0.8	26	90	119
	Jan-97	ND (0.5)	7.22	8.1	ND (5)	ND (5)	ND (5)	34	38	510	ND (5)	1.8	ND (0.5)	ND (0.5)	4.3
	Apr-97	0.25	7.67	2.5	ND (5)	ND (5)	ND (5)	13	14	240	ND (5)	ND (5)	18	6.9	150
	Oct-97	ND (0.05)	7.24	0.61	ND (0.5)	ND (0.5)	0.74	10	12	210	0.77	0.54	0.99	0.67	3.1
	May-98	ND (0.05)	7.46	0.54	ND (0.5)	ND (0.5)	1.5	6.6	7.6	26	2.5	ND (0.5)	ND (0.5)	ND (0.5)	ND (1.5)
	Nov-98	ND (0.05)	7.5	0.76	ND (0.5)	ND (0.5)	1.3	1.9	2.3	25	2.0	ND (0.5)	0.59	ND (0.5)	4.4
	Aug-99	ND (0.05)	7.41	0.47	ND (0.5)	ND (0.5)	ND (0.5)	6.1	6.7	24.8	1.0	ND (0.5)	ND (0.5)	ND (0.5)	ND (1.0)
	Dec-99	ND (0.5)	7.34	0.98	ND (0.5)	ND (0.5)	ND (0.5)	4.3	8.4	42.1	1.5	ND (0.5)	ND (0.5)	ND (0.5)	ND (1.0)
	Apr-00	ND (0.5)	7.35	1.18	ND (0.5)	ND (0.5)	1.1	11.2	19.9	60.3	2.6	ND (0.5)	ND (0.5)	ND (0.5)	ND (1.0)
	Oct-00	ND (0.5)	7.49	3.12	ND (0.5)	ND (0.5)	0.7	1.7	1.2	17.1	1.8	ND (0.5)	ND (0.5)	ND (0.5)	ND (1.0)
	Apr-01	ND (0.5)	7.48	0.26	ND (0.5)	ND (0.5)	0.9	0.7	0.7	18.7	2.0	ND (0.5)	ND (0.5)	ND (0.5)	ND (1.0)
	Oct-01	ND (0.5)	7.36	2.01	ND (0.5)	ND (0.5)	0.9	1.2	2.4	11.9	1.2	1.4	ND (0.5)	ND (0.5)	ND (1.0)
	Apr-02	ND (0.5)	7.35	1.25	ND (1.0)	ND (1.0)	ND (1.0)	1.7	4.7	41.1	1.3	ND (1.0)	ND (1.0)	ND (1.0)	ND (2.0)
	Oct-02	ND (0.5)	7.35	1.84	ND (2.5)	ND (2.5)	ND (2.5)	3	8.0	66.0	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (5)
	Apr-03	ND (0.5)	7.37	0.72	ND (0.5)	ND (0.5)	0.9	2.8	5.2	ND (0.5)	2.8	ND (0.5)	ND (0.5)	ND (0.5)	ND (1.0)
	Oct-03	ND (0.5)	7.38	1.45	ND (0.5)	ND (0.5)	0.65	0.5	3.27	33.9	1.23	4.7J	34J	6.52	10.3
	May-04	ND (0.5)	7.36	0.23	ND (0.5)	ND (0.5)	0.9	1.8	3.10	8.8	1.6	ND (0.5)	ND (0.5)	ND (0.5)	ND (1.0)
	Oct-04	ND (0.5)	7.47	0.282	ND (0.5)	ND (0.5)	1.6	0.7	2.3	1.0	5.6	ND (0.5)	ND (0.5)	ND (0.5)	ND (1.0)
	Apr-05	ND (0.5)	7.42	0.33	ND (0.5)	ND (0.5)	0.9	ND (0.5)	ND (0.5)	6.4	2.3	ND (0.5)	ND (0.5)	ND (0.5)	ND (1.0)
	Nov-05	ND (0.5)	7.29	1.85	ND (2.5)	ND (2.5)	0.8 J	0.6	2.0 J	109	1.5 J	ND (2.5)	ND (2.5)	ND (2.5)	2.8 J
	May-06	ND (0.5)	N/A	0.63	ND (2.5)	ND (2.5)	0.74J	ND (2.5)	1.3J	47.6	1.8J	ND (2.5)	ND (2.5)	ND (2.5)	ND (5.0)
Oct-06	ND (0.17)	7.36	ND (0.05)	ND (0.24)	ND (0.23)	0.68J	ND (0.31)	1.2J	62.0	1.3J	ND (0.32)	ND (0.37)	ND (0.46)	ND (0.3)	
May-07	ND (0.17)	7.38	0.34	ND (0.48)	ND (0.46)	1.0	0.10J	0.5	34.1	1.2	0.6	ND (0.074)	ND (0.092)	ND (0.059)	
Oct-07	ND (0.5)	7.45	0.67	ND (0.048)	ND (0.04)	0.9	0.29J	0.9	36.7	1.8	ND (0.064)	ND (0.074)	ND (0.092)	ND (0.059)	
MW-8	Apr-91		7.2	ND (0.1)				NA	NA	NA	NA	ND (50)	180	550	740
	Jan-94		7.4	0.5				ND (130)	ND (130)	ND (130)	ND (130)	ND (130)	3,400	12,000	21,000
	Apr-94		7.8	0.43	ND (5)		ND (5)	ND (5)	10	ND (5)	ND (5)	ND (250)	3,400	7,600	12,400
	Jul-94		7.9	1.3	ND (5)		ND (5)	27	21	22	3.0	39	2400 ⁴	2800 ⁴	10000 ⁴
	Nov-94		7.5	0.86	ND (1,000)		ND (1,000)	ND (1,000)	ND (1,000)	ND (1,000)	ND (1,000)	ND (1,000)	6,200	27,000	23,000
	Jun-95	ND (0.5)	7.5	0.3	ND (5)		ND (5)	ND (5)	25	ND (5)	ND (5)	ND (50)	400	160	5,900
	Sep-95	ND (0.5)	7.6	2.8	ND (5)	ND (5)	ND (5)	ND (5)	17	ND (5)	ND (5)	ND (500)	2,000	1,500	8,300
	Dec-95	ND (0.5)	7.9	1.8	ND (5)	ND (5)	ND (5)	22	51	7.5	ND (5)	ND (500)	ND (500)	ND (500)	7,800
	Mar-96	ND (0.5)	7.6	1	ND (0.5)	ND (0.5)	9.4	5.8	24	2.4	0.76	ND (5)	400	13	1,470
	Jan-97	0.65	7.41	0.88	ND (5)	ND (5)	ND (5)	ND (5)	11	ND (5)	ND (5)	ND (50)	2,300	ND (50)	3,600
	Apr-97	0.30	7.37	2.7	ND (1)	ND (1)	ND (1)	ND (1)	3.8	ND (1)	ND (1)	6.5	530	17	ND (750)
	Oct-97	ND (0.05)	7.19	0.12	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	4,800	290	14,000
	May-98	ND (0.05)	7.38	0.91	ND (0.5)	ND (0.5)	1.6	160	51	ND (0.5)	2.2	ND (0.5)	72	39	260
	Nov-98	6.5	7.9	1.9	ND (25)	ND (25)	ND (25)	ND (25)	ND (25)	ND (25)	ND (25)	30	2,700	160	7,300
	Aug-99	ND (0.5)	7.33	0.75	ND (2.5)	ND (2.5)	ND (2.5)	97	49	7.5	ND (2.5)	ND (2.5)	23	25	60
	Dec-99	ND (0.5)	7.40	3.02	ND (25)	ND (25)	140	ND (25)	ND (25)	65.0	ND (25)	ND (25)	695	775	4,180
	Apr-00	ND (0.5)	7.39	0.59	ND (0.5)	ND (0.5)	1.5	17.4	26.2	11.4	2.5	ND (0.5)	12.8	75.4	63
	Oct-00	ND (0.5)	7.41	ND (0.05)	ND (0.5)	ND (0.5)	1.2	22.2	13.3	3.0	1.2	ND (0.5)	ND (0.5)	ND (0.5)	ND (1.0)
	Apr-01	ND (0.5)	7.45	0.24	ND (0.5)	ND (0.5)	0.9	16.7	10.9	3.4	1.1	ND (0.5)	ND (0.5)	ND (0.5)	ND (1.0)
	Oct-01	ND (0.5)	7.42	0.27	ND (0.5)	ND (0.5)	1	10.2	7.1	1.4	1.0	ND (0.5)	ND (0.5)	3.8	22.9
	Apr-02	ND (0.5)	7.41	0.27	ND (0.5)	ND (0.5)	0.8	16.6	13.3	5.1	1.0	ND (0.5)	ND (0.5)	ND (0.5)	ND (1.0)
	Oct-02	ND (0.5)	7.34	0.48	ND (0.5)	ND (0.5)	0.8	4.7	7.5	8.6	1.4	ND (0.5)	ND (0.5)	ND (0.5)	ND (1.0)
	Apr-03	ND (0.5)	7.36	0.3	ND (0.5)	ND (0.5)	0.7	4.7	5.4	1.7	1.8	ND (0.5)	4.3	7.5	16.9
	Oct-03	ND (0.5)	7.39	0.47	ND (0.5)	ND (0.5)	0.68	2.19	6.77	7.53	1.02	0.52	ND (0.5)	6.86	54.7
	May-04	ND (0.5)	7.32	0.48	ND (0.5)	ND (0.5)	2.6	8.0	12.1	13.20	1.30	ND (0.5)	ND (0.5)	ND (0.5)	ND (1.0)
	Oct-04	ND (0.5)	7.51	0.914	ND (0.5)	ND (0.5)	1.9	0.7	3.7	16.0	6.2	ND (0.5)	ND (0.5)	ND (0.5)	ND (1.0)
	Apr-05	ND (0.5)	7.35	0.20	ND (0.5)	ND (0.5)	1.1	0.5	1.4	1	2.8	ND (0.5)	ND (0.5)	ND (0.5)	1
	Nov-05	ND (0.5)	7.38	0.18	ND (5.0)	ND (5.0)	ND (5.0)	4.8 J	9.6	4.6 J	0.97 J	ND (5.0)	39	44	544
	May-06	ND (0.5)	NA	0.07	ND (0.5)	ND (0.5)	1.2	3.1	8.0	5.3	1.6	ND (0.5)	7.2	9.6	191
Oct-06	ND (0.17)	7.41	0.10	ND (0.048)	ND (0.046)	1.3	1.92	5.16	4.8	1.54	ND (0.064)	ND (0.074)	4.1	73.9	
May-07	ND (0.17)	7.42	ND (0.025)	ND (0.048)	ND (0.046)	1.4	3.70	8.20	6.9	1.00	ND (0.064)	ND (0.074)	0.7	58.6	
Oct-07	ND (0.5)	7.39	0.40	ND (0.048)	0.06J	1.0	3.00	10.20	19.1	1.40	ND (0.064)	ND (0.074)	ND (0.092)	59.5	

TABLE 2
HISTORICAL GROUNDWATER ANALYTICAL RESULTS
PILOT CHEMICAL COMPANY
SANTA FE SPRINGS, CALIFORNIA

Monitoring Well	Date	TPH (mg/L)	pH units	MBAS (mg/L)	1,1-DCA (ug/L)	1,1-DCE (ug/L)	PCE (ug/L)	Carbon Tetrachloride (ug/L)	Chloroform (ug/L)	1,2-DCA (ug/L)	TCE (ug/L)	Benzene (ug/L)	Ethylbenzene (ug/L)	Toluene (ug/L)	Total Xylenes (ug/L)
MW-9	Apr-91		7.54	0.1				NA	NA	NA	NA	4.8	2.7	2.3	33
	Jan-94		7.1	0.8				ND (10)	ND (10)	ND (10)	410	ND (10)	ND (10)	ND (10)	ND (30)
	Apr-94		7.6	ND (0.025)	2 ⁴		ND (2.5)	ND (2.5)	ND (2.5)	73	ND (0.5)	0.69	ND (0.5)	ND (0.5)	ND (0.5)
	Jul-94		7.6	0.2	ND (5)		ND (5)	ND (5)	ND (5)	110	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)
	Nov-94		7.1	ND (0.1)	6.2		ND (5)	ND (5)	ND (5)	220	ND (5)	150	33	150	
	Jun-95	ND (0.5)	7.2	0.01	17	6.4	ND (5)	ND (5)	ND (5)	300	ND (0.5)	ND (0.5)	1.1	1.2	
	Sep-95	ND (0.5)	7.2	0.55	54	14	ND (5)	8.1	ND (5)	650	0.68	20	59	67	
	Dec-95	ND (0.5)	7.3	1.4	55	12	ND (5)	ND (5)	ND (5)	620	ND (5)	58	69	184	
	Mar-96	ND (0.5)	7.3	2	29	6.2	ND (5)	ND (5)	ND (5)	78	470	41	18	218	
	Jan-97	ND (0.5)	7.17	1.2	16	ND (5)	ND (5)	ND (5)	ND (5)	30	210	0.61	18	8.8	86
	Apr-97 ⁹	ND (0.05)	7.15	0.19	38	13	1.6	ND (0.5)	5.7	11	350	0.57	ND (0.5)	ND (0.5)	ND (1.5)
	Oct-97	ND (0.05)	6.9	0.39	52	14	ND (2.5)	ND (2.5)	6	6.6	600	ND (2.5)	ND (2.5)	ND (2.5)	ND (7.5)
	May-98	ND (0.05)	7.12	0.63	63	14	ND (2.5)	ND (2.5)	7.1	7.1	710	ND (2.5)	5.3	13	ND (7.5)
	Nov-98	0.43	7.2	4.1	35	7.8	ND (2.5)	ND (2.5)	6.8	100	280	ND (2.5)	ND (2.5)	ND (2.5)	ND (7.5)
	Aug-99 ⁹	ND (0.5)	7.21	0.91	24.7	9.3	0.9	ND (0.5)	3	26.3	190	ND (0.5)	1.2	ND (0.5)	1.6
	Dec-99 ¹⁶	ND (0.5)	7.26	0.23	33.4	8.0	0.5	ND (0.5)	4.1	24	200	ND (0.5)	ND (0.5)	ND (0.5)	ND (1.0)
	Apr-00	ND (0.5)	7.11	0.18	62	12.0	13	ND (5)	10	21	452	ND (5)	ND (5)	ND (5)	ND (10)
	Oct-00 ¹⁷	ND (0.5)	7.17	1.78	32.1	6.6	1.7	ND (0.5)	3.8	4	246	ND (0.5)	ND (0.5)	ND (0.5)	ND (1.0)
	Apr-01 ¹⁸	ND (0.5)	7.17	0.46	42.8	7.1	1.6	ND (0.5)	5.4	4.3	191	ND (0.5)	ND (0.5)	ND (0.5)	ND (1.0)
	Oct-01 ²⁰	ND (0.5)	7.24	ND (0.05)	3.1	6.9	1.5	ND (0.5)	2.6	1.4	143	0.9	ND (0.5)	2.7	10.5
	Apr-02 ²⁰	ND (0.5)	7.2	0.61	12.1	2.2	0.9	ND (0.5)	1.3	4.7	78.7	0.8	ND (0.5)	ND (0.5)	ND (1.0)
	Oct-02	ND (0.5)	7.11	0.64	46	9.0	ND (5)	ND (5)	5	5.0	290	ND (5)	ND (5)	ND (5)	ND (10)
	Apr-03 ²⁰	ND (0.5)	7.25	0.83	17.4	2.4	1.4	ND (0.5)	1.4	11.3	115	1.0	ND (0.5)	ND (0.5)	ND (1.0)
	Oct-03 ²¹	ND (0.5)	7.23	0.7	35.5	4.94	1.2	ND (0.5)	4.69	5.04	124	0.65	ND (0.5)	ND (0.5)	ND (1.0)
	May-04 ²⁰	ND (0.5)	7.23	0.88	13.5	1.50	1.2	ND (0.5)	1.4	16.10	79.3	ND (0.5)	ND (0.5)	ND (0.5)	ND (1.0)
	Oct-04 ²²	ND (0.5)	7.23	0.511	7.9	2.3	1.2	ND (0.5)	1.2	17.8	48.8	0.7	ND (0.5)	ND (0.5)	ND (1.0)
	Apr-05	ND (0.5)	7.07	0.50	ND (2.5)	8.5	ND (2.5)	ND (2.5)	9.0	7.8	311.0	ND (2.5)	ND (2.5)	ND (2.5)	ND (5.0)
	Nov-05	ND (0.5)	7.17	0.32	39.4	6.0	2.4	ND (0.5)	6.1	6.0	167.0	0.8	ND (0.5)	ND (0.5)	0.6 J
	May-06 ²²	ND (0.5)	NA	ND (0.05)	ND (2.5)	3.7	2.3 J	ND (2.5)	8.0	12.0	215.0	ND (2.5)	ND (2.5)	ND (2.5)	2.1 J
	Oct-06 ²³	ND (0.17)	7.12	0.20	48.1	4.3	1.84 J	ND (0.31)	6.9	3.2	202.0	ND (0.32)	ND (0.37)	ND (0.46)	ND (0.295)
	May-07	ND (0.17)	7.10	ND (0.025)	38.5	3.8	1.9	ND (0.062)	5.0	8.7	135.0	1.6	ND (0.074)	0.4 J	1
	Oct-07 ²⁰	ND (0.5)	7.00	0.24	49.1	3.1	1.9 J	ND (0.31)	6.1	7.8	206.0	ND (2.5)	ND (0.37)	ND (0.46)	ND (0.295)
MW-10	Apr-91		7.44	1.2				NA	NA	NA	NA	27	35	170	
	Jan-94		7.2	1.1				ND (50)	ND (50)	1,500	ND (50)	ND (50)	570	ND (50)	410
	Apr-94		7.4	3.9	ND (5)		ND (5)	ND (5)	8.1	660 ⁴	ND (5)	5.2	250	ND (5)	15
	Jul-94		7.3	14	ND (5)		ND (5)	ND (5)	20	2,100 ⁴	8.3	ND (250)	1,600	2,500	1,960
	Nov-94		7	1.1	ND (50)		ND (50)	ND (50)	ND (50)	3,900	ND (50)	ND (50)	3,400	220	2,400
	Jun-95	ND (0.5)	7.3	0.03	ND (50)		ND (50)	ND (50)	ND (50)	2,900	ND (50)	ND (50)	2,100	ND (50)	ND (50)
	Sep-95	0.92	7.1	5.3	ND (5)	ND (5)	ND (5)	9.1	35	5,600	8.6	51	4,400	130	678
	Dec-95	0.34	7.4	22	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	5,500	ND (50)	ND (500)	18,000	ND (500)	3,700
	Mar-96	0.55	7.4	15	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	2,200	ND (50)	ND (50)	1,500	ND (50)	130
	Jan-97	ND (0.5)	7.25	60	ND (250)	ND (250)	ND (250)	ND (250)	ND (250)	5,200	ND (250)	ND (250)	19,000	ND (250)	1,100
	Apr-97	0.38	7.4	4.4	ND (5)	ND (5)	ND (5)	ND (5)	20	1,300	ND (5)	12	640	12	57
	Oct-97	0.3	6.99	18	ND (25)	ND (25)	ND (25)	ND (25)	ND (25)	5,100	ND (25)	46	6,600	26	130
	May-98	0.3	7.26	1.7	ND (25)	ND (25)	ND (25)	ND (25)	ND (25)	2,600	ND (25)	43	3,200	820	2,100
	Nov-98	160	7.4	1,700	ND (25)	ND (25)	ND (25)	ND (25)	ND (25)	1,900	ND (25)	ND (25)	2,100	380	1,000
	Aug-99	ND (0.5)	7.32	17.3	ND (25)	ND (25)	ND (25)	ND (25)	ND (25)	2,170	ND (25)	ND (25)	2,750	525	2,450
	Dec-99	ND (0.5)	7.10	8.37	ND (25)	ND (25)	ND (25)	ND (25)	ND (25)	5,250	ND (25)	60	4,500	3,140	4,855
	Apr-00	ND (0.5)	7.26	12.7	ND (50)	ND (50)	ND (50)	ND (50)	76	6,030	ND (50)	ND (50)	4,590	ND (50)	4,368
	Oct-00	ND (0.5)	7.34	4.94	ND (5)	ND (5)	ND (5)	ND (5)	13	1,150	ND (5)	21	1,830	24	874
	Apr-01	ND (0.5)	7.35	5.7	ND (25)	ND (25)	ND (25)	ND (25)	25	3,300	ND (25)	ND (25)	2,970	ND (25)	1,130
	Oct-01	ND (0.5)	7.22	6.86	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	1,530	ND (0.5)	76	ND (0.5)	1,030	6,160
	Apr-02	ND (0.5)	7.21	8.64	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	1,810	ND (50)	ND (50)	1,170	ND (50)	1,730
	Oct-02	ND (0.5)	7.10	12.1	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	3,980	ND (50)	54	3,030	ND (50)	3,570
	Apr-03	ND (0.5)	7.31	61.1	ND (25)	ND (25)	ND (25)	ND (25)	26	2,750	ND (25)	32	2,000	ND (25)	1,920
	Oct-03	ND (0.5)	7.38	61.4	ND (25)	ND (25)	ND (25)	ND (25)	ND (25)	2,640	ND (25)	41	2,200	ND (25)	1,870
	Apr-04	ND (0.5)	7.30	47.3	ND (100)	ND (100)	ND (100)	ND (100)	ND (100)	2,600	ND (100)	ND (100)	180	ND (100)	480
	Oct-04	ND (0.5)	7.32	7.12	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	669	ND (50)	ND (50)	106	ND (50)	122
	Apr-05	ND (0.5)	7.25	9.24	ND (25)	ND (25)	ND (25)	ND (25)	ND (25)	920	ND (25)	ND (25)	360	ND (25)	278
	Oct-05	ND (0.5)	7.08	31.5	ND (250)	ND (250)	ND (250)	ND (250)	ND (250)	5300	28 J	ND (250)	2,270	900	2,220
	Apr-06	ND (0.5)	7.11	31.1	ND (250)	ND (250)	ND (250)	ND (250)	45	3,630	ND (250)	ND (250)	3,360	ND (250)	2,570
	Oct-06	ND (0.5)	7.11	31.1	ND (4.0)	ND (4.0)	ND (6.0)	ND (6.0)	27.8	3,352	8.2 J	115	3,120	ND (9.0)	2,630
	Apr-07	ND (0.5)	7.11	31.1	ND (4.0)	ND (4.0)	ND (6.0)	ND (6.0)	3.410	ND (4.0)	ND (6.0)	1,460	ND (9.0)	1,750	
	Oct-07	ND (0.5)	7.11	31.1	ND (1.2)	ND (1.2)	ND (2.5)	ND (1.5)	ND (1.5)	5,000	ND (1.1)	ND (1.6)	ND (1.8)	ND (2.3)	1,500

TABLE 2
HISTORICAL GROUNDWATER ANALYTICAL RESULTS
PILOT CHEMICAL COMPANY
SANTA FE SPRINGS, CALIFORNIA

Monitoring Well	Date	TPH (mg/L)	pH units	MBAS (mg/L)	1,1-DCA (ug/L)	1,1-DCE (ug/L)	PCE (ug/L)	Carbon Tetrachloride (ug/L)	Chloroform (ug/L)	1,2-DCA (ug/L)	TCE (ug/L)	Benzene (ug/L)	Ethylbenzene (ug/L)	Toluene (ug/L)	Total Xylenes (ug/L)
MW-11	Apr-91		7.39	2.2				NA	NA	NA	NA	ND (0.5)	0.95	1	7.6
	Jan-94		7.1	1.4				ND (1.3)	ND (1.3)	35	3.3	ND (1.3)	ND (1.3)	ND (1.3)	ND (3.8)
	Apr-94		7.4	18	ND (0.5)		2.4	ND (0.5)	1.3	54 ⁴	5.1	1.2	4.7	0.69	1.5
	Jul-94		7.3	11	ND (10)		ND (10)	ND (10)	ND (10)	ND (10)	80	ND (10)	92	340	327
	Nov-94		6.9	1.7	ND (2.5)		ND (2.5)	2.6	ND (2.5)	100	5.3	9.6	4.1	10	7.5
	Jun-95	ND (0.5)	7.3	1	ND (5)		ND (5)	ND (5)	ND (5)	12	ND (5)	ND (0.5)	ND (0.5)	ND (0.5)	11
	Sep-95	ND (0.5)	7.1	8.3	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	83	ND (50)	ND (5)	110	530	353
	Dec-95	0.68	7.2	23	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	90	ND (5)	ND (5)	18	ND (5)	21
	Mar-96	0.8	7.2	24	ND (5)	ND (5)	6.9	ND (5)	ND (5)	73	ND (5)	ND (5)	47	25	83
	Jan-97	0.62	7.14	9.8	ND (5)	ND (5)	5.2	ND (5)	ND (5)	38	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)
	Apr-97	0.52	7.13	7.9	ND (1)	ND (1)	3.6	ND (1)	ND (1)	30	3.3	ND (0.5)	ND (0.5)	ND (0.5)	ND (1.5)
	Oct-97	ND (0.05)	6.82	9.7	ND (0.5)	ND (0.5)	4.3	ND (0.5)	ND (0.5)	28	5.2	ND (0.5)	ND (0.5)	ND (0.5)	ND (1.5)
	May-98 ¹³	ND (0.05)	6.95	7.9	ND (0.5)	ND (0.5)	4	ND (0.5)	ND (0.5)	ND (0.5)	3.9	ND (0.5)	ND (0.5)	ND (0.5)	ND (1.5)
	Nov-98	ND (0.05)	7.1	21	ND (0.5)	ND (0.5)	3.9	ND (0.5)	ND (0.5)	27	5.2	ND (0.5)	ND (0.5)	ND (0.5)	ND (1.5)
	Aug-99	ND (0.5)	6.97	11.4	ND (0.5)	ND (0.5)	2.7	ND (0.5)	ND (0.5)	20.2	4.2	3.8	ND (0.5)	ND (0.5)	2.3
	Dec-99	ND (0.5)	7.07	3.77	ND (0.5)	ND (0.5)	2.4	ND (0.5)	ND (0.5)	27.4	3.6	ND (0.5)	ND (0.5)	ND (0.5)	ND (1.0)
	Apr-00	ND (0.5)	7.13	1.43	26	ND (0.5)	4	ND (0.5)	0.5	ND (0.5)	3.3	ND (0.5)	ND (0.5)	ND (0.5)	ND (1.0)
	Oct-00	ND (0.5)	7.13	3.96	ND (0.5)	ND (0.5)	3.9	ND (0.5)	ND (0.5)	13	1.8	ND (0.5)	ND (0.5)	ND (0.5)	ND (1.0)
	Apr-01	ND (0.5)	7.16	4.95	0.3J	0.8	8.1	ND (0.5)	0.7	25.5	3.1	ND (0.5)	ND (0.5)	ND (0.5)	ND (1.0)
	Oct-01	ND (0.5)	7.09	2.12	ND (0.5)	3.2	17.7	ND (0.5)	1.5	4.3	3.3	0.5	ND (0.5)	ND (0.5)	ND (1.0)
	Apr-02	ND (0.5)	7.16	7.22	ND (0.5)	1.7	14.7	ND (0.5)	0.6	14.3	3.2	ND (0.5)	ND (0.5)	ND (0.5)	ND (1.0)
	Oct-02	ND (0.5)	7.12	9.41	ND (0.5)	2.9	21.4	ND (0.5)	0.7	13.5	3.9	ND (0.5)	ND (0.5)	ND (0.5)	ND (1.0)
	Apr-03	ND (0.5)	7.18	6.08	ND (0.5)	ND (0.5)	10.4	ND (0.5)	ND (0.5)	5.3	2.3	ND (0.5)	ND (0.5)	ND (0.5)	1.1
	Oct-03	ND (0.5)	7.20	18.3	125J	1.3	12.9	ND (0.5)	2.76	14.5	1.89	ND (0.5)	ND (0.5)	ND (0.5)	ND (1.0)
	May-04	ND (0.5)	7.22	4.19	ND (0.5)	1.0	14.9	ND (0.5)	2.5	9.0	7.0	ND (0.5)	ND (0.5)	ND (0.5)	ND (1.0)
	Oct-04	ND (0.5)	7.31	0.886	ND (0.5)	1.3	13.0	0.5	1.0	1.9	5.7	ND (0.5)	ND (0.5)	ND (0.5)	ND (1.0)
	Apr-05	ND (0.5)	7.35	1.91	ND (0.5)	ND (0.5)	12.5	ND (0.5)	1.2	ND (0.5)	7.3	ND (0.5)	ND (0.5)	0.9	ND (1.0)
	Nov-05	ND (0.5)	7.25	4.23	0.26	1.8	11.8	ND (0.5)	0.9	17	3.1	0.24 J	ND (0.5)	0.36 J	0.7 J
	May-06	ND (0.5)	N/A	1.56	ND (0.5)	0.2J	3.2	ND (0.5)	0.15J	1.5	1.8	ND (0.5)	ND (0.5)	ND (0.5)	ND (1.0)
	Oct-06	ND (0.17)	7.26	7.28	0.159J	0.52	8.5	ND (0.062)	0.114J	9.97	2.35	ND (0.064)	ND (0.074)	0.80	0.97J
	May-07	ND (0.17)	7.27	2.39	0.13J	0.92	9.9	ND (0.062)	0.7	11.20	1.70	ND (0.064)	ND (0.074)	ND (0.092)	ND (0.059)
	Oct-07	ND (0.5)	7.23	2.44	0.27J	1.80	18.7	0.36J	3.4	12.40	3.10	ND (0.064)	ND (0.074)	ND (0.092)	ND (0.059)
DUP-1(MW-7)	Apr-97	NA	NA	NA	ND (2.5)	ND (2.5)	ND (2.5)	13	12	200	ND (2.5)	ND (2.5)	22	8.3	150
DUP-2(MW-3)	Apr-97	NA	NA	NA	ND (0.5)	ND (0.5)	1.2	ND (0.5)	ND (0.5)	16	3.1	ND (0.5)	8.5	4.6	9.6
DUP-(MW-4)	Oct-97	NA	NA	NA	ND (0.5)	ND (0.5)	1.3	ND (0.5)	ND (0.5)	23	3.3	ND (0.5)	32	20	29
DUP-(MW-7)	Oct-97	NA	NA	NA	ND (0.5)	ND (0.5)	0.64	8.5	12	210	0.68	0.54	1.1	0.86	3.7
MW-98 ¹⁴	Nov-98	NA	NA	NA	ND (250)	ND (250)	ND (250)	ND (250)	ND (250)	3,300	ND (250)	ND (250)	7,100	130,000	47,000
MW-99 ¹⁵	Nov-98	NA	NA	NA	5.6	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	240	47	95
DUP-1(MW-3)	Aug-99	NA	NA	NA	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	70	ND (5)	ND (5)	3,450	6,800	11,600
DUP-2(MW-6)	Aug-99	NA	NA	NA	ND (5)	ND (5)	ND (5)	201	145	35	ND (5)	ND (5)	ND (5)	ND (5)	ND (10)
DUP-1(MW-7)	Dec-99	NA	NA	NA	ND (0.5)	ND (0.5)	ND (0.5)	4.1	8.1	40.7	1.5	ND (0.5)	ND (0.5)	ND (0.5)	ND (1.0)
DUP-2(MW-1)	Dec-99	NA	NA	NA	ND (250)	ND (250)	ND (250)	ND (250)	ND (250)	1,500	ND (250)	ND (250)	32,800	122,000	160,000
DUP-1(MW-9)	Apr-00	NA	NA	NA	64	11	13	ND (5.0)	10	20	488	ND (5.0)	ND (5.0)	ND (5.0)	ND (10)
DUP-2(MW-11)	Apr-00	NA	NA	NA	19.3	ND (0.5)	2.8	ND (0.5)	ND (0.5)	ND (0.5)	2.4	ND (0.5)	ND (0.5)	ND (0.5)	ND (1.0)
DUP-1(MW-10)	Oct-00	NA	NA	NA	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	11	1,640	ND (5.0)	18	1,510	25	725
DUP-2(MW-8)	Oct-00	NA	NA	NA	ND (0.5)	ND (0.5)	1.2	22.3	13.9	3.1	1.2	ND (0.5)	ND (0.5)	ND (0.5)	ND (1.0)
DUP-1(MW-1)	Apr-01	NA	NA	NA	ND (500)	ND (500)	ND (500)	ND (500)	109J	580	ND (500)	ND (500)	19,900	64,100	66,200
DUP-2(MW-3)	Apr-01	NA	NA	NA	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	58.0	ND (50)	ND (50)	4,580	6,990	11,640
DUP-1(MW-4)	Apr-02	NA	NA	NA	ND (0.5)	ND (0.5)	0.7	ND (0.5)	ND (0.5)	2.0	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (1.0)
DUP-1 (MW-6)	Oct-02	NA	NA	NA	ND (2.5)	ND (2.5)	ND (2.5)	58	47	8.0	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (5)
DUP-1 (MW-9)	Apr-03	NA	NA	NA	8.5	1.6	1.2	58	0.5	5.5	75.4	0.5	ND (0.5)	ND (0.5)	ND (1.0)
DUP-1 (MW-4)	Oct-03	NA	NA	NA	ND (0.5)	ND (0.5)	0.61	ND (0.5)	.34J	20.2	1.04	ND (0.5)	.19J	ND (0.5)	1.42
DUP-1 (MW-8)	May-04	NA	NA	NA	ND (0.5)	ND (0.5)	2.7	8.2	15.2	17.6	1.4	ND (0.5)	ND (0.5)	ND (0.5)	ND (1.0)
DUP-1 (MW-4)	Oct-04	NA	NA	NA	ND (0.5)	ND (0.5)	1.8	ND (0.5)	ND (0.5)	5.4	8.7	ND (0.5)	ND (0.5)	ND (0.5)	ND (1.0)
Dup-1(MW-10)	Apr-05	NA	NA	NA	ND (25)	ND (25)	ND (25)	ND (25)	ND (25)	870	ND (25)	ND (25)	314	ND (25)	255
Dup-1(MW-2)	Nov-05	NA	NA	NA	ND (250)	ND (250)	ND (250)	ND (250)	ND (250)	1750	ND (250)	ND (250)	5,000	33,300	28,000
Dup-1 (MW-4)	May-06	NA	NA	NA	ND (0.5)	ND (0.5)	0.61	ND (0.5)	0.11J	0.72	1.44	ND (0.5)	ND (0.5)	ND (0.5)	ND (1.0)
Dup-1 (MW-4)	Oct-06	NA	NA	NA	ND (0.048)	ND (0.046)	ND (0.093)	ND (0.052)	0.20J	1.4	1.20	ND (0.064)	9.6	3	28
Dup-1 (MW-11)	May-07	NA	NA	NA	0.12J	1.0	9.00	ND (0.062)	0.9	10.5	1.60	ND (0.064)	ND (0.074)	ND (0.092)	ND (0.059)
Dup-1 (MW-8)	Oct-07	NA	NA	NA	ND (0.5)	ND (0.5)	2.10	3.3	10.7	19.5	1.60	0.8	ND (0.5)	24.2	116

¹NA = Not Analyzed

²ND = Not Detected above laboratory limit

(J) = Detection Limit

⁴Estimated concentration

⁵Chlorobenzene detected at 16,000 ppb

⁶Bromodichloromethane and 1,1,2,2-Tetrachloroethane detected at 12 ppb and 11 ppb, respectively

⁷Freon 113 detected at 3.1 ppb

⁸Methylene Chloride detected at 10 ppb

⁹cis-1,2 DCE detected at 1.0 ppb (Apr-97) and 1.6 ppb (Aug-97)

¹⁰Methylene Chloride detected at 29 ppb

¹¹Methylene Chloride detected at 17 ppb

¹²Methylene Chloride detected at 7.5 ppb

¹³cis-1,2 DCE detected at 23 ppb

¹⁴Duplicate of MW-2

¹⁵Duplicate of MW-4

¹⁶cis-1,2 DCE detected at 1.5 ppb (Dec-99)

¹⁷cis-1,2 DCE detected at 1.1 ppb (Oct-00)

¹⁸cis-1,2 DCE detected at 1.5 ppb and Bromodichloromethane detected at 1.6 ppb (Apr-01)

¹⁹1,1,1-TCA detected at 3.2 ppb (Oct-01)

²⁰cis-1,2 DCE detected at 1.8 ppb (Oct-01), 1.0 ppb (Apr-02), 1.5 ppb (Apr-03), 3.7 ppb (May-04), 3.8 ppb (Oct-04)

²¹cis-1,2 DCE detected at 1.73 ppb and chlorobenzene estimated at .28 ppb (Oct-03)

²²cis-1,2 DCE detected at 2.3 ppb (Oct-04) and 4.0 ppb (May-06)

TABLE 3
LABORATORY ANALYTICAL RESULTS
MASS REMOVAL CALCULATIONS - SOIL VAPOR EXTRACTION SYSTEM
PILOT CHEMICAL

SAMPLE NUMBER	DATE SAMPLED	Elapsed Time Operational (min)	Elapsed Time Between Events (day)	Total Elapsed Time (days)	AVE. FLOW RATE (cfm)	Mass lbs/cu.ft	Mass lbs/min	Total Mass Removed Between Events (lbs)	Total Mass Removed (lbs)	Mass Removal Rate (lb/day)	Total VOCs (ppmv)	Total VOC (ug/l)	226B - VOCs (ppmv)					
													1,2-DC	Envl benzene	toluene	Xylenes Total	o-xylene/benzene	MTBE
EW3	1/24/06 2:10 PM	175	0.12	0.12	3.2	0.0009318	0.0029818	0.52	0.52	4.29	3511	14927	<50	182	896	2433	<50	<50
EW3	2/13/06 11:41 AM	23131	16.1	16.2	3.39	0.0006394	0.0025886	59.88	60.40	3.73	2410	10243	<50	137	620	1653	<50	<50
EW3	2/17/06 12:04 PM	3203	2.2	18.4	1.03	0.0007757	0.0015637	5.01	65.41	2.25	2913	12425	<50	171	676	2066	<50	<50
VS2	1/24/06 2:15 PM	180	0.12	0.12	2.6	0.0010149	0.0026387	0.47	0.47	3.80	3827.0	16257	165.0	610.0	914.0	2138.0	<50	<50
VS2	2/13/06 11:44 AM	23129	16.1	16.2	6.57	0.0007447	0.0040339	93.30	93.77	5.81	2793.0	11929	129.0	422.0	556.0	1686.0	<50	<50
VS2	2/17/06 12:06 PM	3202	2.2	18.4	3.08	0.0007741	0.0036641	11.73	105.51	5.28	2905.0	12400	115.0	422.0	600.0	1768.0	<50	<50
VS2	3/15/06 11:12 AM	37386	26.0	44.4	2.40	0.0009595	0.0023751	88.79	194.30	3.42	3591.0	15370	167.0	534.0	761.0	2129.0	<50	<50
VS2	4/5/06 12:45 PM	30333	21.1	65.4	1.82	0.0011694	0.0022460	68.13	262.43	3.23	4392.0	18732	133.0	755.0	1010.0	2437.0	57	<50
VS2	4/17/06 11:00 AM	17175	11.9	77.4	2.82	0.0008502	0.0023428	40.24	302.67	3.37	3201.0	13620	<50	496.0	799.0	1906.0	<50	<50
VS2	5/2/06 10:35 AM	60	0.042	77.4	53.00	0.0009687	0.0253831	1.52	304.19	36.55	3684.0	15517	109.0	483.0	1190.0	1836.0	66	<50
VS2	5/9/06 11:26 AM	10131	7.035	84.4	4.10	0.0009830	0.0278612	282.26	586.45	40.12	3688.0	15747	80.0	574.0	837.0	2147.0	50	<50
VS2	5/12/06 4:51 PM	4645	3.226	87.7	3.30	0.0009958	0.0036609	17.00	603.46	5.27	3728.0	15951	106.0	523.0	802.0	2222.0	75	<50
VS2	6/9/06 11:14 AM	28823	20.016	107.7	1.61	0.0010413	0.0025006	72.07	675.53	3.60	3892.0	16681	104.0	528.0	799.0	2378.0	83	<50
VS2	7/7/06 11:04 AM	30548	21.214	128.9	2.59	0.0009270	0.0028313	86.49	762.02	4.08	3463.7	14849	108.0	377.0	654.0	2294.0	30.7	<8
VS2 opened 100% on 10/18/06 - no sample taken																		
VS2	12/5/06 11:09 AM	59220	41.125	170.0	1.04	0.0009831	0.0013412	79.43	841.45	1.93	3686.0	15748	116.0	489.0	793.0	2248.0	40	<8
VS2 opened 100% on 1/5/07 - no sample taken																		
VS2	1/29/07 11:07 AM	34146	23.713	193.7	1.32	0.0002673	0.0011270	38.48	879.93	1.62	1028.2	4282	52.7	129.0	390.0	450.1	6.4	<4
VS2	3/2/07 11:09 AM	39294	27.288	221.0	1.92	0.0013010	0.0012703	49.92	929.84	1.83	4878.0	20840	102.0	701.0	1100.0	2898.0	77	<8
VS2	4/18/07 1:34 PM	48372	33.592	254.6	1.68	0.0004765	0.0015997	77.38	1007.22	2.30	1790.0	7632	50.0	258.0	415.0	1046.0	21	<3
VS2	5/7/07 11:04 AM	23298	16.179	270.8	2.33	0.0004816	0.0009605	22.38	1029.60	1.38	1809.0	7715	62.0	242.0	411.0	1073.0	21	<4
VS2	5/31/07 11:19 AM	34548	23.992	294.8	3.63	0.0006480	0.0016832	58.15	1087.75	2.42	2439.3	10381	72.5	314.0	597.0	1427.0	28.8	<8
VS2	6/19/07 11:44 AM	25740	17.875	312.7	1.75	0.0009831	0.0021939	56.47	1144.22	3.16	3686.0	15748	116.0	489.0	793.0	2248.0	40	<4
VS2	7/10/07 11:06 AM	15864	11.017	323.7	1.50	0.0005594	0.0012533	19.88	1164.10	1.80	2119.7	8961	67.7	289.0	610.0	1133.0	20	<4
VS2	7/25/07 2:08 PM	16560	11.500	335.2	3.80	0.0005614	0.0014851	24.59	1188.70	2.14	2121.6	8993	50.4	302.0	584.0	1161.0	24.2	<4
VS2	12/11/07 11:14 AM	25176	17.483	352.7	7.84	0.0007423	0.0037939	95.51	1284.21	5.46	2787.1	11891	66.3	314.0	639.0	1736.0	31.8	<4
EW4	7/7/06 12:55 PM	85	0.05	0.05	4.3	0.0016191	0.0069621	0.5918	0.5918	10.03	6009.0	25936	<5.0	194	888	4927	<7.0	<8.0
EW4	7/18/06 10:57 AM	15722	10.92	10.97	2.2	0.0015855	0.0052075	81.87	82.46	7.50	5929.8	25398	<5.0	297	1210	4414	8.8	<8.0
VS1	7/18/06 12:46 PM	45	0.03	0.03	6.85	0.0016045	0.0109910	0.49	0.49	15.83	6298.0	25702.5	79.0	519.0	3360.0	2326.0	14	<8.0
VS1	8/10/06 11:14 AM	25108	17.4	17.5	6.54	0.0001869	0.0059969	150.57	151.07	8.64	720	2994	<1.0	64	298	354	4	<1.6
VS1 opened 20% on 12/5/06 - no sample taken																		
VS1	1/2/07 10:29 AM	33120	23.0	40.5	1.75	0.0007969	0.0020391	67.53	218.60	2.94	3104	12766	<5.0	218	1520	1352	14	<8.0
VS1	1/29/07 11:04 AM	34146	23.7	64.2	1.04	0.0003585	0.0008059	27.52	246.12	1.16	1403.4	5743	28	102	721	546.3	6.1	<1.6
VS1	3/2/07 11:06 AM	39294	27.3	91.5	2.13	0.0008791	0.0009808	38.54	284.66	1.41	3406.9	14082	49.3	219	1530	1590	18.6	<8
VS1	4/18/07 1:43 PM	48372	33.6	125.1	2.39	0.0004620	0.0015154	73.30	357.96	2.18	1770.7	7400	23	123	662	953	9.7	<3
VS1	5/7/07 11:08 AM	23298	16.2	141.2	4.33	0.0005984	0.0017814	41.50	399.46	2.57	2293	9586	25	169	854	1233	12	<4
VS1	5/31/07 11:16 AM	34548	24.0	165.2	5.00	0.0006471	0.0029051	100.37	499.83	4.18	2488.4	10365	<2.5	166	1000	1312	10.4	<4
VS1	6/19/07 11:40 AM	25740	17.9	183.1	4.07	0.0006030	0.0028346	72.96	572.79	4.08	2320	9660	33.5	166	923	1187	10.5	<4
VS1	7/10/07 11:01 AM	15864	11.0	194.1	2.63	0.0004207	0.0017147	27.20	599.99	2.47	1630	6738	<2.5	119	741	762.2	7.8	<4
VD1	8/10/06 12:15 PM	25	0.02	0.02	6.20	0.0009188	0.0056965	0.14	0.14	8.20	3575.0	14717.8	<2.5	298.0	1710.0	1567.0	<3.5	<4.0
VD1	8/17/06 12:15 PM	8550	5.9	6.0	2.50	0.0017815	0.0058731	50.21	50.36	8.46	6894	28537	<10.0	704	3040	3150	<14	<16
VD2	8/29/06 11:59 AM	1440	1.00	1.00	4.10	0.0017336	0.0071076	10.23	10.23	10.23	6869.0	27769.5	<5.0	401.0	4130.0	2338.0	<7.0	<8.0
VD2	9/6/06 11:58 AM	10169	7.1	8.1	5.76	0.0011479	0.0071029	72.23	82.46	10.23	4504	18388	<5.0	296	2410	1798	<7.0	<8.0
VD3	9/6/06 12:59 PM	60	0.04	0.04	3.03	0.0015447	0.0046803	0.28	0.28	6.74	6088.0	24743.4	25	712	3430	1921	<7.0	<8.0
VD3	9/12/06 11:27 AM	5758	4.0	4.0	1.47	0.0015284	0.0034572	19.91	20.19	4.98	6026	24483	24	703	3410	1889	<7.0	<8.0
VD3 opened 25% on 12/5/06 - no sample taken																		
VD3	1/2/07 10:29 AM	33120	23.0	27.0	0.76	0.0011652	0.0015017	49.74	69.92	2.16	4675	18665	<5.0	293	3200	1182	<7.0	<8.0
VD4	9/12/06 11:44 AM	15	0.01	0.01	3.54	0.0007233	0.0025605	0.04	0.04	3.69	2804.0	11586.6	<5	476	1270	1058	<7.0	<8.0
VD4	10/3/06 1:22 PM	8288	5.8	5.8	1.47	0.0004493	0.0014687	12.17	12.21	2.11	1745	7197	<5	271	813	661	<7.0	<8.0
VD5	10/3/06 1:32 PM	10	0.01	0.01	1.29	0.0000198	0.0000255	0.00	0.00	0.04	74.6	316.7	<0.25	9.8	19.8	45	<0.35	<0.4
VD5	10/5/06 11:07 AM	2735	1.9	1.9	0.66	0.0018813	0.0009268	2.53	2.53	1.33	7461	30136	<5	606	4530	2325	<7.0	<8.0
VD6	10/5/06 11:18 AM	11	0.01	0.01	1.29	0.0010929	0.0014099	0.02	0.02	2.03	4272.0	17507.1	<5	247.0	2190.0	1821	14	<0.4
VD6	10/11/06 9:49 AM	8551	5.9	5.9	1.22	0.0014157	0.0015742	13.46	13.48	2.27	5597	22678	23	388	3280	1895	11	<8.0
VD6 opened 100% on 12/5/06 - no sample taken																		
VD6	1/2/07 10:29 AM	33120	23.0	28.9	1.11	0.0004923	0.0011114	36.81	50.29	1.60	1972	7885	<5.0	142	1330	500	<7.0	<8.0
VD7	10/11/06 9:59 AM	10	0.01	0.01	0.59	0.0009628	0.0005680	0.01	0.01	0.82	3785.0	15422.7	43	263.0	2070.0	1392	17	<0.4
VD7	10/18/06 10:18 AM	2959	2.1	2.1	1.00	0.0008740	0.0007301	2.16	2.17	1.05	3414	14001	40	259	1720	1377	18	<8.0

Tables



PACIFIC EDGE ENGINEERING

(949) 470-1937; (949) 470-0943 (FAX)

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TABLE 1
HISTORICAL GROUNDWATER ELEVATION DATA
PILOT CHEMICAL

Well Identification	Date Measured	Elevation ¹ (feet)	Depth to Water ² (feet)	Groundwater Elevation ³ (feet)
MW-1	6/22/1995	152.44 ⁴	35.39	117.05
	9/25/1995	152.44 ⁴	30.89	121.55
	12/19/1995	152.44 ⁴	36.25	116.19
	3/27/1996	152.44 ⁴	32.99	119.45
	1/21/1997	152.60 ⁵	35.62	116.98
	4/24/1997		33.64	118.96
	5/14/1997		33.50	119.10
	10/22/1997		37.01	115.59
	5/12/1998		32.54	120.06
	11/17/1998		34.82	117.78
	8/19/1999		40.71	111.89
	12/27/1999		49.84	102.76
	4/11/2000		43.42	109.18
	10/31/2000		43.13	109.47
	4/4/2001		41.02	111.58
	10/30/2001		45.42	107.18
	4/10/2002		42.76	109.84
	10/23/2002		51.20	101.40
	4/8/2003		45.17	107.43
	10/9/2003		53.67	98.93
	5/17/2004		55.45	97.15
	10/29/2004		62.29	90.31
	11/8/2005		47.30	105.30
	5/12/2006		44.56	108.04
	10/26/2006		47.46	105.14
	4/30/2007		44.81	107.79
	10/29/2007		53.97	98.63
MW-2	6/22/1995	153.45	33.08	120.37
	9/25/1995		35.59	117.86
	12/19/1995		39.52	113.93
	3/27/1996		35.72	117.73
	1/21/1997		36.55	116.90
	4/24/1997		34.75	118.70
	5/14/1997		34.88	118.57
	10/22/1997		38.39	115.06
	5/12/1998		33.52	119.93
	11/17/1998		37.54	115.91
	8/19/1999		41.58	111.87
	12/27/1999 ⁶		49.82	103.63
	4/11/2000		44.22	109.23
	10/31/2000		43.56	109.89
	4/4/2001		41.54	111.91
	10/30/2001		44.89	108.56
	4/10/2002		43.30	110.15
	10/23/2002		51.39	102.06
	4/8/2003		46.20	107.25
	10/9/2003		53.79	99.66
	5/17/2004		56.46	96.99
	10/29/2004		63.15	90.30
	11/8/2005		48.23	105.22
	5/12/2006		45.68	107.77
	10/26/2006 ⁶		48.17	105.28
	4/30/2007		45.91	107.54
	10/29/2007		54.84	98.61

TABLE 1
HISTORICAL GROUNDWATER ELEVATION DATA
PILOT CHEMICAL

Well Identification	Date Measured	Elevation ¹ (feet)	Depth to Water ² (feet)	Groundwater Elevation ³ (feet)
MW-3	6/22/1995	153.70	33.39	120.31
	9/25/1995		35.96	117.74
	12/19/1995		39.99	113.71
	3/27/1996		36.13	117.57
	1/21/1997		37.31	116.39
	4/24/1997		35.25	118.45
	5/14/1997		35.28	118.42
	10/22/1997		39.12	114.58
	5/12/1998		34.31	119.39
	11/18/1998		38.10	115.60
	8/19/1999		42.11	111.59
	12/27/1999		51.34	102.36
	4/11/2000		45.16	108.54
	10/31/2000		44.75	108.95
	4/4/2001		42.67	111.03
	10/30/2001		46.94	106.76
	4/10/2002		44.36	109.34
	10/23/2002		52.56	101.14
	4/8/2003		46.90	106.80
	10/9/2003		54.97	98.73
	5/17/2004		57.08	96.62
	10/29/2004		63.91	89.79
	11/8/2005		well dry	N/A
	5/12/2006		46.28	107.42
	10/26/2006		49.02	104.68
	4/30/2007		46.55	107.15
	10/29/2007		55.56	98.14
MW-4	6/22/1995	155.18	34.92	120.26
	9/25/1995		37.48	117.70
	12/19/1995		41.49	113.69
	3/27/1996		37.56	117.62
	1/21/1997		38.85	116.33
	4/24/1997		36.82	118.36
	5/14/1997		36.81	118.37
	10/22/1997		40.65	114.53
	5/12/1998		35.82	119.36
	11/17/1998		39.65	115.53
	8/19/1999		43.63	111.55
	12/27/1999		52.84	102.34
	4/11/2000		46.72	108.46
	10/31/2000		46.29	108.89
	4/4/2001		44.22	110.96
	10/30/2001		48.48	106.70
	4/10/2002		45.89	109.29
	10/23/2002		54.13	101.05
	4/8/2003		48.46	106.72
	10/9/2003		56.48	98.70
	5/17/2004		58.60	96.58
	10/29/2004		65.44	89.74
	11/8/2006		50.54	104.64
	5/12/2006 ^b		57.40	97.78
	10/26/2006		50.63	104.55
	4/30/2007		48.12	107.06
	10/29/2007 ^c		66.67	88.51

TABLE 1
HISTORICAL GROUNDWATER ELEVATION DATA
PILOT CHEMICAL

Well Identification	Date Measured	Elevation ¹ (feet)	Depth to Water ² (feet)	Groundwater Elevation ³ (feet)
MW-5	6/22/1995	151.70	30.28	121.42
	9/25/1995		33.26	118.44
	12/19/1995		36.92	114.78
	3/27/1996		31.99	119.71
	1/21/1997		33.91	117.79
	4/24/1997		33.85	117.85
	5/14/1997		32.19	119.51
	10/22/1997		36.11	115.59
	5/12/1998		31.02	120.68
	11/17/1998		35.14	116.56
	8/20/1999		39.42	112.28
	12/27/1999		48.60	103.10
	4/11/2000		41.80	109.90
	10/31/2000		41.52	110.18
	4/4/2001		39.37	112.33
	10/30/2001		43.96	107.74
	4/10/2002		41.17	110.53
	10/23/2002		49.55	102.15
	4/8/2003		43.51	108.19
	10/9/2003		52.26	99.44
	5/17/2004		54.03	97.67
MW-6	10/29/2004		61.10	90.60
	11/8/2005		45.82	105.88
	5/12/2006		42.86	108.84
	10/26/2006		45.95	105.75
	4/30/2007		43.15	108.55
	10/29/2007		52.74	98.96
	6/22/1995	151.77	30.49	121.28
	9/25/1995		33.36	118.41
	12/19/1995		37.16	114.61
	3/27/1996		33.16	118.61
	1/21/1997		34.21	117.56
	4/24/1997		34.19	117.58
	5/14/1997		32.40	119.37
	10/22/1997		36.31	115.46
	5/12/1998		31.26	120.51
	11/17/1998		35.39	116.38
	8/20/1999		39.59	112.18
	12/27/1999		48.78	102.99
	4/11/2000		42.07	109.70
	10/31/2000		41.78	109.99
	4/4/2001		39.63	112.14
	10/30/2001		44.17	107.60
	4/10/2002		41.42	110.35
	10/23/2002		49.76	102.01
	4/8/2003		43.75	108.02
	10/9/2003		52.42	99.35
	5/17/2004		54.24	97.53
	10/29/2004		61.27	90.50
	11/8/2005		46.06	105.71
	5/12/2006		43.14	108.63
	10/26/2006		46.18	105.59
	4/30/2007		43.38	108.39
	10/29/2007		52.89	98.88

TABLE 1
HISTORICAL GROUNDWATER ELEVATION DATA
PILOT CHEMICAL

Well Identification	Date Measured	Elevation ¹ (feet)	Depth to Water ² (feet)	Groundwater Elevation ³ (feet)
MW-7	6/22/1995	153.28	32.32	120.96
	9/25/1995		35.04	118.24
	12/19/1995		38.96	114.32
	3/27/1996		34.96	118.32
	1/21/1997		36.11	117.17
	4/24/1997		34.11	119.17
	5/14/1997		34.19	119.09
	10/22/1997		38.12	115.16
	5/12/1998		33.11	120.17
	11/17/1998		37.02	116.26
	8/19/1999		41.19	112.09
	12/27/1999		50.45	102.83
	4/11/2000		43.93	109.35
	10/31/2000		43.61	109.67
	4/4/2001		41.47	111.81
	10/30/2001		45.94	107.34
	4/10/2002		43.26	110.02
	10/23/2002		51.53	101.75
	4/8/2003		45.68	107.60
	10/9/2003		54.10	99.18
	5/17/2004		56.01	97.27
	10/29/2004		63.01	90.27
	11/8/2006		47.88	105.40
	5/12/2006		45.02	108.26
	10/26/2006		47.91	105.37
	4/30/2007		45.33	107.95
	10/29/2007		54.65	98.63
MW-8	6/22/1995	151.55	38.88	112.67
	9/25/1995		33.56	117.99
	12/19/1995		37.50	114.05
	3/27/1996		33.59	117.96
	1/21/1997		34.65	116.90
	4/24/1997		34.60	116.95
	5/14/1997		32.75	118.80
	10/22/1997		36.62	114.93
	5/12/1998		31.71	119.84
	11/17/1998		35.70	115.85
	8/20/1999		39.82	111.73
	12/27/1999		48.95	102.60
	4/11/2000		42.55	109.00
	10/31/2000		42.21	109.34
	4/4/2001		40.08	111.47
	10/30/2001		44.46	107.09
	4/10/2002		41.82	109.73
	10/23/2002		50.09	101.46
	4/8/2003		44.29	107.26
	10/9/2003		52.60	98.95
	5/17/2004		54.58	96.97
	10/29/2004		61.53	90.02
	11/8/2005		46.50	105.05
	5/12/2006		43.68	107.87
	10/26/2006		46.57	104.98
	4/30/2007		43.94	107.61
	10/29/2007		53.14	98.41

TABLE 1
HISTORICAL GROUNDWATER ELEVATION DATA
PILOT CHEMICAL

Well Identification	Date Measured	Elevation ¹ (feet)	Depth to Water ² (feet)	Groundwater Elevation ³ (feet)
MW-9	6/22/1995	151.60	31.72	119.88
	9/25/1995		34.26	117.34
	12/19/1995		38.42	113.18
	3/27/1996		34.50	117.10
	1/21/1997		35.75	115.85
	4/24/1997		33.60	118.00
	5/14/1997		33.61	117.99
	10/22/1997		37.41	114.19
	5/12/1998		32.71	118.89
	11/17/1998		36.48	115.12
	8/19/1999		40.40	111.20
	12/27/1999		49.68	101.92
	4/11/2000		43.60	108.00
	10/31/2000		43.19	108.41
	4/4/2001		41.08	110.52
	10/30/2001		45.33	106.27
	4/10/2002		42.76	108.84
	10/23/2002		50.98	100.62
	4/8/2003		45.38	106.22
	10/9/2003		53.30	98.30
	5/17/2004		55.50	96.10
	10/29/2004		62.40	89.20
	11/8/2005		47.44	104.16
	5/12/2006 ⁶		54.30	97.30
	10/26/2006		47.46	104.14
	4/30/2007		45.06	106.54
	10/29/2007		54.93	96.67
MW-10	6/22/1995	153.16	32.32	120.84
	9/25/1995		34.98	118.18
	12/19/1995		38.92	114.24
	3/27/1996		34.92	118.24
	1/21/1997		55.35 ⁶	97.81
	4/24/1997		34.10	119.06
	5/14/1997		34.11	119.05
	10/22/1997		37.98	115.18
	5/12/1998		33.12	120.04
	11/17/1998		36.98	116.18
	8/19/1999		41.12	112.04
	12/27/1999		50.31	102.85
	4/11/2000		43.83	109.33
	10/31/2000		43.50	109.66
	4/4/2001		41.41	111.75
	10/30/2001		45.81	107.35
	4/10/2002		43.16	110.00
	10/23/2002		51.39	101.77
	4/8/2003		45.72	107.44
	10/9/2003		53.98	99.18
	5/17/2004		55.84	97.32
	10/29/2004		62.70	90.46
	11/8/2005		47.75	105.41
	5/12/2006		45.30	107.86
	10/26/2006		48.03	105.13
	4/30/2007		45.26	107.90
	10/29/2007		54.49	98.67

TABLE 1
HISTORICAL GROUNDWATER ELEVATION DATA
PILOT CHEMICAL

Well Identification	Date Measured	Elevation ¹ (feet)	Depth to Water ² (feet)	Groundwater Elevation ³ (feet)
MW-11	6/22/1995	152.48	31.49	120.99
	9/25/1995		33.96	118.52
	12/19/1995		37.63	114.85
	3/27/1996		33.85	118.63
	1/21/1997		34.92	117.56
	4/24/1997		35.21	117.27
	5/14/1997		33.17	119.31
	10/22/1997		36.94	115.54
	5/12/1998		32.31	120.17
	11/17/1998		36.10	116.38
	8/19/1999		40.02	112.46
	12/27/1999		48.93	103.55
	4/11/2000		42.79	109.69
	10/31/2000		42.33	110.15
	4/4/2001		40.36	112.12
	10/30/2001		44.60	107.88
	4/10/2002		42.08	110.40
	10/23/2002		50.08	102.40
	4/8/2003		44.55	107.93
	10/9/2003		52.59	99.89
	5/17/2004		54.72	97.76
	10/29/2004		61.19	91.29
	11/8/2005		46.62	105.86
	5/12/2006		43.88	108.60
	10/26/2006		47.63	104.85
	4/30/2007		44.18	108.30
	10/29/2007		53.11	99.37

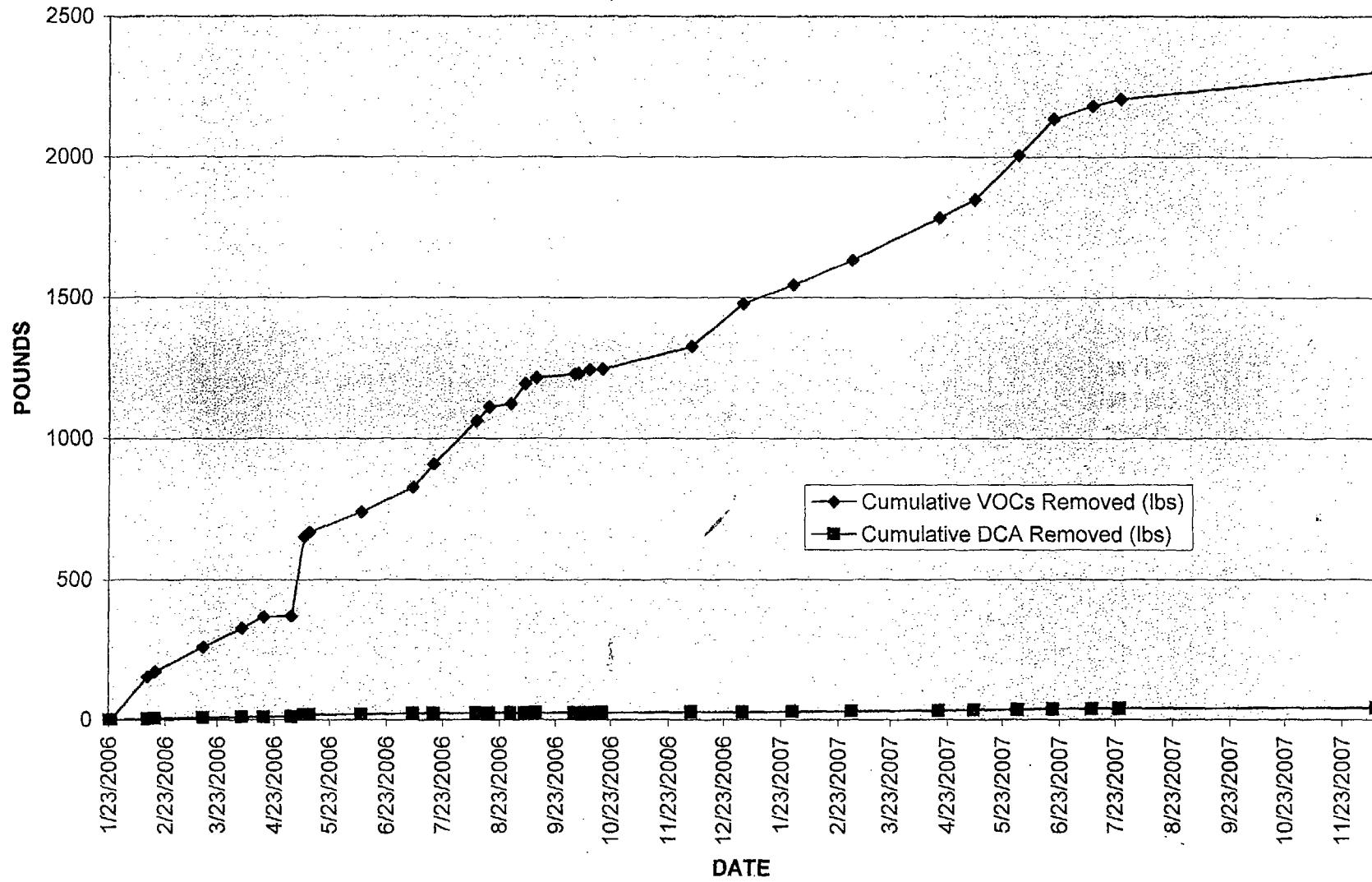
Notes:

- 1 mean sea level elevation - top of well casing.
- 2 depth of water from top of well casing.
- 3 mean sea level elevation - groundwater table
- 4 elevation of original monitor well MW-1; calculated groundwater elevations are approximate.
- 5 surveyed elevation of replacement well MW-1
- 6 suspect measurement and not used to contour flow direction

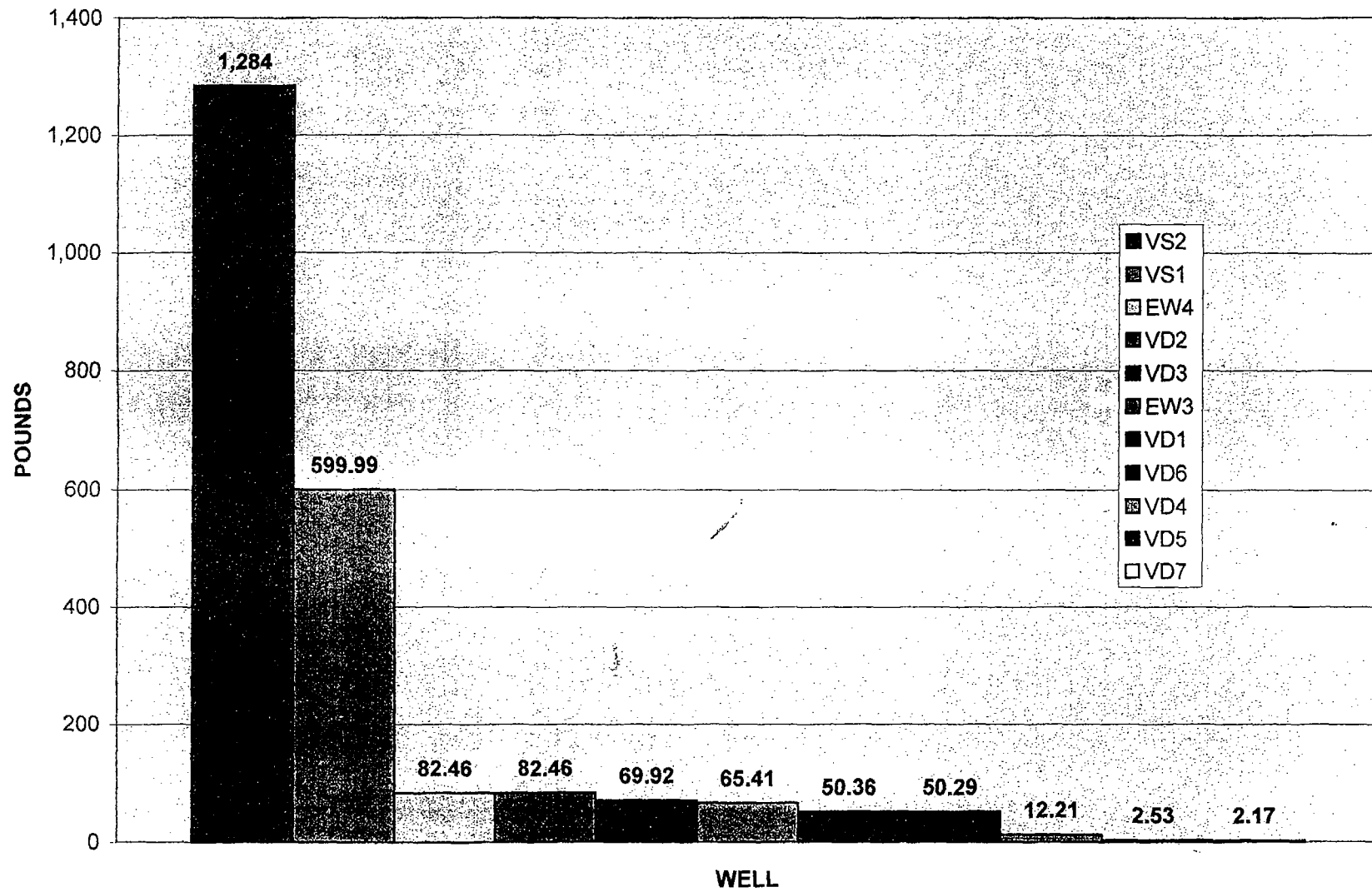
Graphs



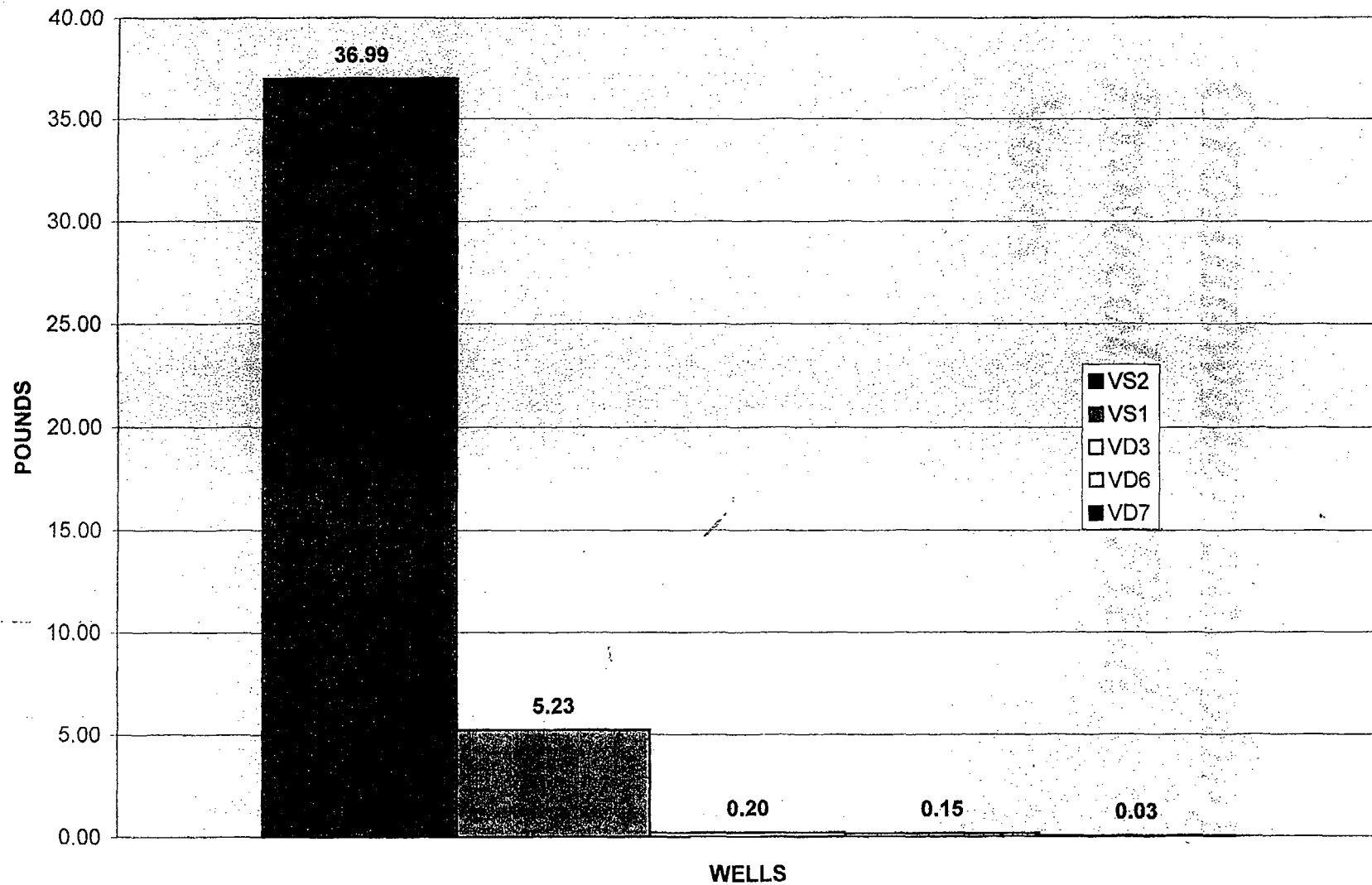
GRAPH 1
Cumulative Pounds Removed



GRAPH 2
Total VOCs Removed by Well
(lbs)



GRAPH 3
Total DCA Removed by Well
(lbs)



Appendix A

Groundwater Sampling Protocol and Field Notes



PACIFIC EDGE ENGINEERING

(949) 470-1937; (949) 470-0943 (FAX)

report_text.doc

Groundwater Sampling Protocol

Groundwater samples were collected after removing three casing volumes of water from developed monitoring wells using a Waterra Inertial Pump. Dedicated 5/8-inch high-density polyethylene tubing was used to convey groundwater from the well to a surface storage container. Dedicated 1/4-inch polyethylene tubing was used to convey the groundwater sample into the appropriate sample container. Groundwater samples were placed in thermally insulated chests containing ice and shipped under chain-of-custody to a State-certified analytical laboratory.

To determine whether cross-contamination of samples occurred during shipment to the laboratory, a trip blank consisting of a vial of distilled water was also included in the sample cooler.



Pilot Chemical

O:/Forms/Technical/HydrodataLog.xls

SAMPLING EVENT DATA SHEET

(fill out completely)

Well ID MW-1

PROJECT <u>Pot Chem</u>		EVENT _____		SAMPLER <u>SM</u>		DATE <u>10/30/07</u>	
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Well / Hydrologic statistics				Action	Time	Pump Rate	IWL (low yield)
<div style="display: flex; justify-content: space-between;"> <div> <p>Well type (<u>MW</u>, EW, etc.)</p> <p>SWL (if above screen)</p> <p>$\Delta = 13.03$</p> <p>SWL (if in screen) <u>53.97</u></p> <p>measured T.D. <u>67.0</u></p> </div> <div> <p>diameter equals <u>4"</u> gal/ft. casing</p> <p>TOP</p> <p>BOP</p> </div> </div>				Start pump/Begin	<u>8:21</u>		
				Sampled	<u>8:51</u>		
				(Final IWL)			

Purge Calculation			
gal/ft.	ft.	gals x 3	gals.
<u>8.5</u>	<u>3</u>	<u>25.5</u>	<u>25.5</u>
SWL to BOP or packer to BOP		one volume	purge volume 3 casings

Head purge calculation (Airlift only)			
gal/ft. x	ft. =	gals.	
Packer to SWL			

Equipment Used / Sampling Method / Description of Event: Purged / Developed with: <u>Water Hydrolift II</u> <u>3/8" Dedicated Poly</u>		Actual gallons purged	<u>25.5</u>	
		Actual volumes purged	<u>3</u>	
		Well yield ⊕ (see below)	<u>MY</u>	
		COC #	<u>42222</u>	
Sampled with: <u>1/4" Disposable Poly</u>	Sample I.D.	<u>MW-1</u>	Analysis	<u>ASL</u>
Additional comments: <u>No bubbles</u>				
Weather Condition <u>AM</u> <u>Clear</u>				

Gallons purged *	TEMP °C / °F (circle one)	EC (us / cm)	PH	TURBIDITY (NTU)	DO	ORP
1. <u>8.5</u>	<u>20.4</u>	<u>0.30</u>	<u>6.96</u>	<u>100</u>	<u>3.64</u>	<u>-150</u>
2. <u>17</u>	<u>20.7</u>	<u>0.26</u>	<u>6.64</u>	<u>62</u>	<u>3.32</u>	<u>-152</u>
3. <u>25.5</u>	<u>20.6</u>	<u>0.26</u>	<u>6.91</u>	<u>44</u>	<u>3.36</u>	<u>-150</u>
4.						
5.						
6.						
7.						
8.						

* Take measurement at approximate each casing volume purged

⊕ HY - Minimal W.L. drop. MY - WL drop - able to purge 3 volumes during on setting by reducing pump rate or cycling pump. LY - able to purge 3 volumes by returning later or next day. VLY - Minimal recharge - unable to purge 3 volumes

Well ID MW-2

(fill out completely)

* Take measurement at approximate each casing volume purged	⊕ <u>HY</u> - Minimal W.L. drop.	<u>MY</u> - WL drop - able to purge 3 volumes during on setting by reducing pump rate or cycling pump.	<u>LY</u> - able to purge 3 volumes by returning later or next day.	<u>VLY</u> - Minimal recharge - unable to purge 3 volumes
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SAMPLING EVENT DATA SHEET

(fill out completely)

Well ID MW-3

PROJECT	EVENT	SAMPLER <u>SM</u>	DATE																																																								
Well / Hydrologic statistics <div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> <p>Well type <u>(MW, EW, etc.)</u></p> <p>SWL (if above screen) _____</p> <p>SWL (if in screen) <u>55.56</u></p> <p>measured T.D. <u>67.1</u></p> </div> <div style="width: 45%;"> <p>diameter <u>2"</u></p> <p>equals <u>0.167</u> gal/ft. casing</p> <p>TOP _____</p> <p>BOP _____</p> </div> </div>		<table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th>Action</th> <th>Time</th> <th>Pump Rate</th> <th>IWL (low yield)</th> </tr> </thead> <tbody> <tr> <td>Start pump/Begin</td> <td><u>1:08</u></td> <td></td> <td></td> </tr> <tr><td> </td><td></td><td></td><td></td></tr> <tr><td> </td><td></td><td></td><td></td></tr> <tr><td> </td><td></td><td></td><td></td></tr> <tr><td> </td><td></td><td></td><td></td></tr> <tr><td> </td><td></td><td></td><td></td></tr> <tr><td> </td><td></td><td></td><td></td></tr> <tr><td> </td><td></td><td></td><td></td></tr> <tr><td> </td><td></td><td></td><td></td></tr> <tr><td> </td><td></td><td></td><td></td></tr> <tr> <td>Stop</td> <td><u>1:38</u></td> <td></td> <td></td> </tr> <tr> <td>Sampled</td> <td><u>1:32</u></td> <td></td> <td></td> </tr> <tr> <td>(Final IWL)</td> <td></td> <td></td> <td></td> </tr> </tbody> </table>		Action	Time	Pump Rate	IWL (low yield)	Start pump/Begin	<u>1:08</u>																																							Stop	<u>1:38</u>			Sampled	<u>1:32</u>			(Final IWL)			
Action	Time	Pump Rate	IWL (low yield)																																																								
Start pump/Begin	<u>1:08</u>																																																										
Stop	<u>1:38</u>																																																										
Sampled	<u>1:32</u>																																																										
(Final IWL)																																																											
<p>Purge Calculation</p> <p>_____ gal/ft. _____ ft. <u>1.9</u> gals x 3 <u>5.7</u> gals.</p> <p style="font-size: small;"> (SWL to BOP or packer to BOP) one volume purge volume 3 casings </p>		<p>Head purge calculation (Airlift only)</p> <p>_____ gal/ft. x _____ ft. = _____ gals.</p> <p style="text-align: center;">(Packer to SWL)</p>																																																									
<p>Equipment Used / Sampling Method / Description of Event: Purged / Developed with:</p> <p><u>Water HydroLift II</u></p> <p><u>3/8" Dedicated Poly</u></p>		<p>Actual gallons purged <u>6</u></p> <p>Actual volumes purged <u>3</u></p> <p>Well yield ⊕ <u>MY</u></p>																																																									
<p>Sampled with: <u>1/4" Disposable Poly</u></p> <p>Additional comments: <u>No bubbles</u></p> <p>Weather Condition <u>AM</u> <u>Clear</u></p>		<p>COC # <u>42223</u></p> <table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th>Sample I.D.</th> <th>Analysis</th> <th>Lab</th> </tr> </thead> <tbody> <tr> <td><u>MW-3</u></td> <td></td> <td><u>ASL</u></td> </tr> <tr><td> </td><td></td><td></td></tr> <tr><td> </td><td></td><td></td></tr> <tr><td> </td><td></td><td></td></tr> <tr><td> </td><td></td><td></td></tr> <tr><td> </td><td></td><td></td></tr> </tbody> </table>		Sample I.D.	Analysis	Lab	<u>MW-3</u>		<u>ASL</u>																																																		
Sample I.D.	Analysis	Lab																																																									
<u>MW-3</u>		<u>ASL</u>																																																									
Gallons purged *	TEMP (°C/°F) (circle one)	EC (us / cm)	PH	TURBIDITY (NTU)	DO	ORP																																																					
1. <u>1.9</u>	<u>23.3</u>	<u>0.22</u>	<u>6.70</u>	<u>330</u>	<u>4.68</u>	<u>-139</u>																																																					
2. <u>3.8</u>	<u>21.9</u>	<u>0.17</u>	<u>6.78</u>	<u>88</u>	<u>5.02</u>	<u>-131</u>																																																					
3. <u>5.7</u>	<u>21.7</u>	<u>0.17</u>	<u>6.80</u>	<u>45</u>	<u>6.65</u>	<u>-128</u>																																																					
4.																																																											
5.																																																											
6.																																																											
7.																																																											
8.																																																											

* Take measurement at approximate each casing volume purged

⊕ HY - Minimal W.L. drop. MY - WL drop - able to purge 3 volumes during on setting by reducing pump rate or cycling pump. LY - able to purge 3 volumes by returning later or next day. VLY - Minimal recharge - unable to purge 3 volumes

SAMPLING EVENT DATA SHEET

Well ID MW-4

(fill out completely)

PROJECT <u>Pilot Chem</u>		EVENT _____		SAMPLER <u>SM</u>		DATE <u>10/29/07</u>	
Well / Hydrologic statistics Well type _____ (MW, EW, etc.) <div style="display: flex; align-items: center;"> <div style="border: 1px solid black; padding: 5px; margin-right: 10px;"> SWL (if above screen) $\Delta = 9.41$ SWL (if in screen) 66.67 measured T.D. <u>76.08</u> </div> <div style="border: 1px solid black; padding: 5px; flex-grow: 1;"> diameter <u>5"</u> equals <u>1.05</u> gal/ft. casing <div style="display: flex; justify-content: space-between;"> TOP BOP </div> </div> </div>				Action Time Pump Rate IWL (low yield)			
				Start pump/Begin <u>12:31</u>			
				Stop <u>12:56</u>			
				Sampled <u>12:59</u>			
				(Final IWL)			
				Purge Calculation _____ gal/ft. _____ ft. <u>9.8</u> gals x 3 <u>29.4</u> gals. <div style="display: flex; justify-content: space-around; font-size: small;"> SWL to BOP or packer to BOP one volume purge volume 3 casings </div>			
				Head purge calculation (Airlift only) _____ gal/ft. x _____ ft. = _____ gals. <div style="text-align: center; font-size: small;">Packer to SWL</div>			
Equipment Used / Sampling Method / Description of Event: Purged / Developed with: <u>Waterm Hydrolift II</u> <u>5/8" Dedicated Poly</u>				Actual gallons purged <u>30</u>			
				Actual volumes purged <u>3</u>			
Sampled with: <u>1/4" Disposable Poly</u> Additional comments: <u>No bubbles</u>				Well yield ⊕ <u>MY</u> (see below)			
				COC # <u>42223</u>			
				Sample I.D. <u>MW-4</u> Analysis _____ Lab <u>ASL</u>			

Weather Condition <u>AM</u> <u>Clear</u> <div style="text-align: center; font-size: small;">PM</div>							
Gallons purged *	TEMP °/°F (circle one)	EC (us / cm)	PH	TURBIDITY (NTU)	DO	ORP	
1. <u>10</u>	<u>23.3</u>	<u>0.18</u>	<u>7.24</u>	<u>63</u>	<u>6.19</u>	<u>129</u>	
2. <u>20</u>	<u>22.3</u>	<u>0.17</u>	<u>6.99</u>	<u>16</u>	<u>6.22</u>	<u>138</u>	
3. <u>230</u>	<u>21.8</u>	<u>0.17</u>	<u>6.95</u>	<u>3</u>	<u>6.73</u>	<u>134</u>	
4.							
5.							
6.							
7.							
8.							

* Take measurement at approximate each casing volume purged

⊕ HY - Minimal W.L. drop. MY - WL drop - able to purge 3 volumes during on setting by reducing pump rate or cycling pump. LY - able to purge 3 volumes by returning later or next day. VLY - Minimal recharge - unable to purge 3 volumes

SAMPLING EVENT DATA SHEET

(fill out completely)

Well ID MW-5

PROJECT _____		EVENT _____		SAMPLER <u>SM</u>		DATE <u>10/30/07</u>	
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Well / Hydrologic statistics				Well type _____ (<u>MW</u> , EW, etc.)	Action	Time	Pump Rate	IWL (low yield)
<div style="display: flex; align-items: center;"> <div style="margin-right: 20px;"> SWL (if above screen) $\Delta = 19.16$ SWL (if in screen) <u>52.74</u> measured T.D. <u>71.9</u> </div> <div style="border-left: 1px solid black; padding-left: 10px; margin-left: 10px;"> d _____ diameter <u>4"</u> equals <u>65</u> gal/ft. casing TOP _____ BOP _____ </div> </div>				Start pump/Begin	<u>9:02</u>			
				Stop	<u>9:51</u>			
				Sampled	<u>9:55</u>			
				(Final IWL)				
Purge Calculation								
_____ gal/ft. _____ ft. <u>12.4</u> gals x 3 <u>37.2</u> gals. <div style="display: flex; justify-content: space-around; font-size: small;"> [SWL to BOP or packer to BOP] [one volume] [purge volume 3 casings] </div>								
Head purge calculation (Airlift only)								
_____ gal/ft. x _____ ft. = _____ gals. <div style="text-align: center; font-size: small;">[Packer to SWL]</div>								

Equipment Used / Sampling Method / Description of Event: Purged / Developed with: <u>Water Hydrolift II</u> <u>5/8" Dedicated Poly</u>				Actual gallons purged <u>37</u> Actual volumes purged <u>3</u> Well yield \oplus <u>MY</u> <small>(see below)</small>			
---	--	--	--	--	--	--	--

Sampled with: <u>1/4" Disposable Poly</u> Additional comments: <u>No bubbles</u> Weather Condition <u>AM</u> <u>Clear</u> <div style="text-align: center; font-size: small;">PM</div>				COC # <u>42222</u> <div style="display: flex; justify-content: space-between;"> <div> Sample I.D. <u>MW-5</u> </div> <div> Analysis </div> <div> Lab <u>ASL</u> </div> </div>			
--	--	--	--	---	--	--	--

Gallons purged *	TEMP (C) °F <small>(circle one)</small>	EC <small>(us / cm)</small>	PH	TURBIDITY <small>(NTU)</small>	DO	ORP
1. <u>12.4</u>	<u>20.4</u>	<u>0.16</u>	<u>7.04</u>	<u>69</u>	<u>2.73</u>	<u>-10</u>
2. <u>24.8</u>	<u>20.4</u>	<u>0.16</u>	<u>7.28</u>	<u>120</u>	<u>3.64</u>	<u>12</u>
3. <u>37.2</u>	<u>20.6</u>	<u>0.16</u>	<u>7.05</u>	<u>130</u>	<u>3.58</u>	<u>44</u>
4.						
5.						
6.						
7.						
8.						

* Take measurement at approximate each casing volume purged
 \oplus HY - Minimal W.L. drop.
MY - WL drop - able to purge 3 volumes during on setting by reducing pump rate or cycling pump.
LY - able to purge 3 volumes by returning later or next day.
VLY - Minimal recharge - unable to purge 3 volumes

(fill out completely)

Well ID

* Take measurement at approximate each casing volume purged

⊕ <u>HY</u> - Minimal W.L. drop.	<u>MY</u> - WL drop - able to purge 3 volumes during on setting by reducing pump rate or cycling pump.	<u>LY</u> - able to purge 3 volumes by returning later or next day.	<u>VLY</u> - Minimal recharge - unable to purge 3 volumes
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(fill out completely)

Well ID MW-7

PROJECT

EVENT

SAMPLER

DATE

Well / Hydrologic statistics

Well type

SWL

SWL

measured T.D.

diameter

gal/ft. casing

TOP

BOP

Action

Time

Pump Rate

IWL

Start pump/Begin

Stop

Sampled

(Final IWL)

Purge Calculation

gal/ft.

ft.

gals x 3

gal/ft.

SWL to BOP or packer to BOP

one volume

purge volume 3 casings

Head purge calculation (Airlift only)

gal/ft. x

ft. =

gals.

Packer to SWL

Equipment Used / Sampling Method / Description of Event:

Purged / Developed with:

Sampled with:

Additional comments:

Weather Condition

Actual gallons purged

Actual volumes purged

Well yield

COC #

Sample I.D.

Analysis

Lab

Gallons purged

TEMP

EC

PH

TURBIDITY

DO

ORP

* Take measurement at

approximate each casing volume purged

HY

Minimal W.L. drop.

MY

WL drop - able to purge 3 volumes during on setting by reducing pump rate or cycling pump.

LY

able to purge 3 volumes by returning later or next day.

VLY

Minimal recharge - unable to purge 3 volumes

(fill out completely)

Well ID MW-8

PROJECT

EVENT

SAMPLER

DATE

Well / Hydrologic statistics

Well type

SWL

SWL

measured T.D.

d

diameter equals

gal/ft. casing

TOP

BOP

Action

Time

Pump Rate

IWL

Start pump/Begin

Stop

Sampled

(Final IWL)

Purge Calculation

gal/ft.

ft.

gals x 3

gals.

Head purge calculation (Airlift only)

gal/ft. x

ft. =

gals.

Equipment Used / Sampling Method / Description of Event:

Purged / Developed with:

Sampled with:

Additional comments:

Weather Condition

Actual gallons purged

Actual volumes purged

Well yield

COC #

Sample I.D.

Analysis

Lab

Gallons purged *

TEMP

EC

PH

TURBIDITY

DO

ORP

* Take measurement at

approximate each

casing volume purged

HY - Minimal

W.L. drop.

MY - WL drop - able to purge 3

volumes during on setting

by reducing pump rate or

cycling pump.

LY - able to purge 3

volumes by returning

later or next day.

VLY - Minimal recharge-

unable to purge

3 volumes

SAMPLING EVENT DATA SHEET

(fill out completely)

Well ID MW-9

PROJECT <u>Pilot Chem.</u>		EVENT _____		SAMPLER <u>SM</u>		DATE <u>10/29/07</u>	
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<p>Well / Hydrologic statistics</p> <p>Well type _____ (MW, EW, etc.)</p> <div style="display: flex; align-items: center;"> <div style="flex: 1;"> <p>SWL (if above screen)</p> <p>$\Delta = 16.17$</p> <p>SWL (if in screen)</p> <p><u>54.93</u></p> <p>measured T.D.</p> <p><u>71.1</u></p> </div> <div style="flex: 1; text-align: center;"> <p>diameter equals <u>4"</u> gal/ft. casing</p> <p>TOP</p> <p>BOP</p> </div> </div>				<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <th>Action</th> <th>Time</th> <th>Pump Rate</th> <th>IWL (low yield)</th> </tr> <tr> <td>Start pump/Begin</td> <td><u>11:34</u></td> <td></td> <td></td> </tr> <tr><td> </td><td></td><td></td><td></td></tr> <tr><td> </td><td></td><td></td><td></td></tr> <tr><td> </td><td></td><td></td><td></td></tr> <tr><td> </td><td></td><td></td><td></td></tr> <tr><td> </td><td></td><td></td><td></td></tr> <tr><td> </td><td></td><td></td><td></td></tr> <tr><td> </td><td></td><td></td><td></td></tr> <tr><td> </td><td></td><td></td><td></td></tr> <tr><td> </td><td></td><td></td><td></td></tr> <tr> <td>Stop</td> <td><u>12:11</u></td> <td></td> <td></td> </tr> <tr> <td>Sampled</td> <td><u>12:14</u></td> <td></td> <td></td> </tr> <tr> <td>(Final IWL)</td> <td></td> <td></td> <td></td> </tr> </table> <p style="text-align: center;">Purge Calculation</p> <p>_____ gal/ft. _____ ft. <u>10.5</u> gals x 3 <u>31.5</u> gals.</p> <p style="text-align: center;"> SWL to BOP or packer to BOP one volume purge volume 3 casings </p> <p style="text-align: center;">Head purge calculation (Airlift only)</p> <p>_____ gal/ft. x _____ ft. = _____ gals.</p> <p style="text-align: center;">Packer to SWL</p>				Action	Time	Pump Rate	IWL (low yield)	Start pump/Begin	<u>11:34</u>																																							Stop	<u>12:11</u>			Sampled	<u>12:14</u>			(Final IWL)			
Action	Time	Pump Rate	IWL (low yield)																																																												
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Sampled	<u>12:14</u>																																																														
(Final IWL)																																																															

<p>Equipment Used / Sampling Method / Description of Event: Purged / Developed with:</p> <p><u>Water HydroLift II</u></p> <p><u>5/8" Dedicated Poly</u></p>		<p>Actual gallons purged <u>31</u></p> <p>Actual volumes purged <u>31.3</u></p> <p>Well yield \oplus <u>MY</u> (see below)</p>	
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<p>Sampled with: <u>1/4" Disposable Poly</u></p> <p>Additional comments: <u>Replace Foot Valve</u> <u>No bubbles</u></p> <p>Weather Condition <u>AM</u> <u>Clear</u> <u>PM</u></p>		<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <th>COC #</th> <th>Sample I.D.</th> <th>Analysis</th> <th>Lab</th> </tr> <tr> <td><u>42223</u></td> <td><u>MW-9</u></td> <td></td> <td><u>ASL</u></td> </tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> </table>			COC #	Sample I.D.	Analysis	Lab	<u>42223</u>	<u>MW-9</u>		<u>ASL</u>																				
COC #	Sample I.D.	Analysis	Lab																													
<u>42223</u>	<u>MW-9</u>		<u>ASL</u>																													

Gallons purged *	TEMP °C / °F (circle one)	5/14 EC (us/cm)	PH	TURBIDITY (NTU)	DO	ORP
1. <u>10</u>	<u>22.3</u>	<u>0.23</u>	<u>5.83</u>	<u>92</u>	<u>7.01</u>	<u>189</u>
2. <u>20</u>	<u>24.8</u>	<u>0.24</u>	<u>6.86</u>	<u>160</u>	<u>7.71</u>	<u>138</u>
3. <u>31</u>	<u>23.1</u>	<u>0.24</u>	<u>6.81</u>	<u>130</u>	<u>7.47</u>	<u>151</u>
4.						
5.						
6.						
7.						
3.						

* Take measurement at approximate each casing volume purged

\oplus HY - Minimal W.L. drop. MY - WL drop - able to purge 3 volumes during on setting by reducing pump rate or cycling pump. LY - able to purge 3 volumes by returning later or next day. VLY - Minimal recharge - unable to purge 3 volumes

(fill out completely)

Well ID MW-10

PROJECT

EVENT

SAMPLER

DATE

Well / Hydrologic statistics

Well type

(MW, EW, etc.)

SWL

(if above screen)

$\Delta = 15.51$

SWL

(if in screen)

54.49

measured

T.D.

70

diameter equals

4"

gal/ft. casing

65

TOP

BOP

Action

Time

Pump Rate

IWL (low yield)

Start pump/Begin

12:53

Stop

1:33

Sampled

1:38

(Final IWL)

Purge Calculation

gal/ft.

ft.

10

gals x 3

30

gals.

SWL to BOP or packer to BOP

one volume

purge volume 3 casings

Head purge calculation (Airlift only)

gal/ft. x

ft. =

gals.

Packer to SWL

Equipment Used / Sampling Method / Description of Event:

Purged / Developed with:

Water Hydro II

5/8" Dedicated Poly

Actual gallons purged

18

Actual volumes purged

2

Well yield \oplus

(see below)

LY

Sampled with:

1/4" Disposable Poly

Additional comments:

Went dry @ 18 gallons, lower end sample, no bubbles

Weather Condition

AM

PM

Clear

COC #

4222

Sample I.D.

Analysis

Lab

Gallons purged *

TEMP $^{\circ}$ F

(circle one)

EC

(us / cm)

PH

TURBIDITY

(NTU)

DO

ORP

1.

10

22.0

0.46

7.04

160

2.71

-155

2.

20 18

22.5

0.45

7.03

150

2.54

-135

3.

30

4.

5.

6.

7.

3.

* Take measurement at approximate each casing volume purged

\oplus HY - Minimal W.L. drop.

MY - WL drop - able to purge 3 volumes during on setting by reducing pump rate or cycling pump.

LY - able to purge 3 volumes by returning later or next day.

VLY - Minimal recharge - unable to purge 3 volumes

SAMPLING EVENT DATA SHEET

(fill out completely)

Well ID MW-11

PROJECT <u>Pilot Check</u>		EVENT _____		SAMPLER <u>SM</u>		DATE <u>10/30/07</u>	
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Well / Hydrologic statistics Well type _____ (MW, EW, etc.) <div style="display: flex; align-items: center;"> <div style="flex: 1;"> <p>SWL (if above screen)</p> <p>$\Delta = 20.49$</p> <p>SWL (if in screen)</p> <p><u>53.11</u></p> <p>measured T.D.</p> <p><u>73.6</u></p> </div> <div style="flex: 1; border-left: 1px solid black; padding-left: 10px;"> <p>diameter <u>4"</u></p> <p>equals <u>65</u> gal/ft. casing</p> <p>TOP</p> <p>BOP</p> </div> </div>				<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <th>Action</th> <th>Time</th> <th>Pump Rate</th> <th>IWL (low yield)</th> </tr> <tr> <td>Start pump/Begin</td> <td><u>11:54</u></td> <td></td> <td></td> </tr> <tr><td> </td><td></td><td></td><td></td></tr> <tr><td> </td><td></td><td></td><td></td></tr> <tr><td> </td><td></td><td></td><td></td></tr> <tr><td> </td><td></td><td></td><td></td></tr> <tr><td> </td><td></td><td></td><td></td></tr> <tr><td> </td><td></td><td></td><td></td></tr> <tr><td> </td><td></td><td></td><td></td></tr> <tr> <td>Stop</td> <td><u>12:34</u></td> <td></td> <td></td> </tr> <tr> <td>Sampled</td> <td><u>12:38</u></td> <td></td> <td></td> </tr> <tr> <td>(Final IWL)</td> <td></td> <td></td> <td></td> </tr> </table> <div style="margin-top: 10px;"> <p>Purge Calculation</p> <p><u>13.3</u> gal/ft. <u>13.3</u> ft. <u>13.3</u> gals x 3 <u>40</u> gals.</p> <p style="font-size: small;"> (SWL to BOP or packer to BOP) one volume (purge volume 3 casings) </p> <p>Head purge calculation (Airlift only)</p> <p>_____ gal/ft. x _____ ft. = _____ gals.</p> <p style="text-align: center; font-size: small;">(Packer to SWL)</p> </div>				Action	Time	Pump Rate	IWL (low yield)	Start pump/Begin	<u>11:54</u>																															Stop	<u>12:34</u>			Sampled	<u>12:38</u>			(Final IWL)			
Action	Time	Pump Rate	IWL (low yield)																																																				
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Sampled	<u>12:38</u>																																																						
(Final IWL)																																																							

Equipment Used / Sampling Method / Description of Event: Purged / Developed with: <u>Water HydroLift II</u> <u>3/8" Dedicated Poly</u>			Actual gallons purged <u>32</u> Actual volumes purged <u>2.5</u> Well yield ⊕ <u>LY</u> (see below)																		
Sampled with: <u>1/4" Disposable Poly</u>			<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td>COC #</td> <td><u>42222</u></td> </tr> <tr> <td>Sample I.D.</td> <td><u>MW-11</u></td> </tr> <tr> <td>Analysis</td> <td><u>ASL</u></td> </tr> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> </table>			COC #	<u>42222</u>	Sample I.D.	<u>MW-11</u>	Analysis	<u>ASL</u>										
COC #	<u>42222</u>																				
Sample I.D.	<u>MW-11</u>																				
Analysis	<u>ASL</u>																				
Additional comments: <u>No bubbles</u> <u>Went dry @ 32 gal, lower and sample</u>			Weather Condition <u>AM</u> <u>Clear</u> <u>PM</u>																		

Gallons purged *	TEMP °C/°F (circle one)	EC (us / cm)	PH	TURBIDITY (NTU)	DO	ORP
1. <u>13.3</u>	<u>21.7</u>	<u>0.24</u>	<u>7.37</u>	<u>340</u>	<u>2.93</u>	<u>36</u>
2. <u>26.6</u>	<u>22.2</u>	<u>0.22</u>	<u>6.91</u>	<u>660</u>	<u>3.80</u>	<u>-73</u>
3. <u>32</u>	<u>25.2</u>	<u>0.22</u>	<u>6.96</u>	<u>550</u>	<u>2.65</u>	<u>-128</u>
4.						
5.						
6.						
7.						
3.						

* Take measurement at approximate each casing volume purged
 ⊕ HY - Minimal W.L. drop.
 MY - WL drop - able to purge 3 volumes during on setting by reducing pump rate or cycling pump.
 LY - able to purge 3 volumes by returning later or next day.
 VLY - Minimal recharge - unable to purge 3 volumes

Appendix B

Groundwater Laboratory Analytical Results, Quality Control Reports, and Chain-of-Custody





AMERICAN SCIENTIFIC LABORATORIES, LLC
Environmental Testing Services

2520 N. San Fernando Rd., Los Angeles, CA 90065 Tel: (323) 223-9700 Fax: (323) 223-9500

Ordered By

Pacific Edge Engineering, Inc.
26691 Plaza, Suite 270
Mission Viejo, CA 92691-

Number of Pages 15

Date Received 10/30/2007

Date Reported 11/06/2007

Telephone (949) 470-1937
Attn Craig Stolz

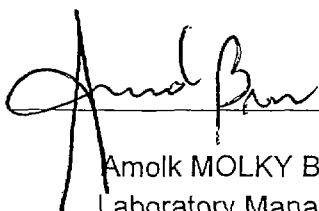
Job Number	Ordered	Client
35729	10/30/2007	PACIFIC

Project ID: PILOT CHEMICAL

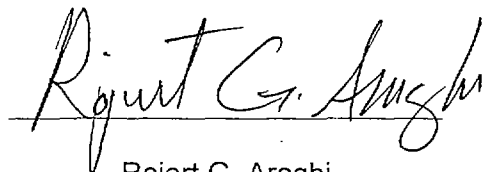
Project Name:

Site: 11756 Burke Street
Santa Fe Springs, CA

Enclosed are the results of analyses on 8 samples analyzed as specified on attached chain of custody.



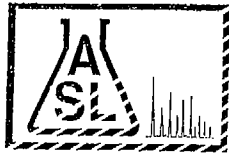
Amolk MOLKY Brar
Laboratory Manager



Rojert G. Araghi
Laboratory Director

American Scientific Laboratories, LLC (ASL) accepts sample materials from clients for analysis with the assumption that all of the information provided to ASL verbally or in writing by our clients (and/or their agents), regarding samples being submitted to ASL, is complete and accurate. ASL accepts all samples subject to the following conditions:

- 1) ASL is not responsible for verifying any client-provided information regarding any samples submitted to the laboratory.
- 2) ASL is not responsible for any consequences resulting from any inaccuracies, omissions, or misrepresentations contained in client-provided information regarding samples submitted to the laboratory.



AMERICAN SCIENTIFIC LABORATORIES, LLC

Environmental Testing Services

2520 N. San Fernando Road, LA, CA 90065 Tel: (323) 223-9700 • Fax: (323) 223-9500

Page 1 Of 1

COC# Nº 42222 GLOBAL ID _____ E REPORT: ☐ PDF ☐ EDF ☐ EDD ASL JOB# 35729

Company: <u>Pacific Edge Engineering</u>		Report <u>Fig</u>		ANALYSIS REQUESTED													
Address: <u>26691 Plaza #270</u>		Project Name: <u>Pilot Chemical</u>		Address: <u>SAA</u>		<div style="display: flex; justify-content: space-between;"> <div>425.1 Surfactants</div> <div>150.1 PH</div> <div>TPH Vessel</div> <div>601 + 602</div> </div>											
Mission Viejo, CA, 92691		Site Address: <u>11756 Burke St.</u>		Invoice To:													
Telephone: <u>949 470 1937</u>		Santa Fe Springs, CA		Address:													
Fax: <u>949 470 0143</u>		Project ID:															
Special Instruction:		Project Manager: <u>Craig Stolz</u>		P.O.#:													
E-mail:																	

ITEM	LAB USE ONLY	SAMPLE DESCRIPTION					Container(s)		Matrix	Preservation													Remarks
	Lab ID	Sample ID	Date	Time	#	Type																	
1	207466	MW-1	10/30/07	9:51	3	VOA Amber Plastic	160	None	X	X	X	X											
2	207467	MW-5		9:55	3	↓			X	X	X	X											
3	207468	MW-6		10:41	3				X	X	X	X											
4	207469	MW-8		11:37	3				X	X	X	X											
5	207470	MW-11		12:38	3				X	X	X	X											
6	207471	MW-10		1:38	3				X	X	X	X											
7	207472	MW-7		2:27	3				X	X	X	X											
8	207473	DUP			3	VOA					X												

Collected By: <u>[Signature]</u>	Date <u>10/30/07</u>	Time <u>15:00</u>	Relinquished By: <u>[Signature]</u>	Date <u>10/30/07</u>	Time <u>15:00</u>	TAT <input checked="" type="checkbox"/> Normal <input type="checkbox"/> Rush
Relinquished By: <u>[Signature]</u>	Date <u>10/30/07</u>	Time <u>15:00</u>	Received For Laboratory <u>Alex</u>	Date <u>10/30/07</u>	Time <u>15:00</u>	
Received By:	Date	Time	Condition of Sample:			

CHAIN OF CUSTODY RECORD



AMERICAN SCIENTIFIC LABORATORIES, LLC
Environmental Testing Services

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ANALYTICAL RESULTS

Ordered By

Pacific Edge Engineering, Inc.
26691 Plaza, Suite 270
Mission Viejo, CA 92691-

Site

11756 Burke Street
Santa Fe Springs, CA

Telephone: (949)470-1937

Attn: Craig Stolz

Page: 2

Project ID: PILOT CHEMICAL

ASL Job Number	Submitted	Client
35729	10/30/2007	PACIFIC

Method: 601/602, Halogenated and Aromatic Volatile Compounds

QC Batch No: 110107-1

Our Lab I.D.			207468	207469	207470	207472	207473
Client Sample I.D.			MW-6	MW-8	MW-11	MW-7	DUP
Date Sampled			10/30/2007	10/30/2007	10/30/2007	10/30/2007	10/30/2007
Date Prepared			11/01/2007	11/01/2007	11/01/2007	11/01/2007	11/02/2007
Preparation Method							
Date Analyzed			11/01/2007	11/01/2007	11/01/2007	11/01/2007	11/02/2007
Matrix			Water	Water	Water	Water	Water
Units			ug/L	ug/L	ug/L	ug/L	ug/L
Dilution Factor			1	1	1	1	1
Analytes	MDL	PQL	Results	Results	Results	Results	Results
Benzene	0.064	0.500	ND	ND	ND	ND	0.8
Bromobenzene (Phenyl bromide)	0.170	0.500	ND	ND	ND	ND	ND
Bromodichloromethane (Dichlorobromomethane)	0.070	0.500	ND	ND	ND	ND	ND
Bromoform (Tribromomethane)	0.200	0.500	ND	ND	ND	ND	ND
Bromomethane (Methyl bromide)	0.114	0.500	ND	ND	ND	ND	ND
Carbon tetrachloride (Tetrachloromethane)	0.062	0.500	23.6	3.0	0.36J	0.29J	3.3
Chlorobenzene	0.060	0.500	ND	ND	ND	ND	ND
Chlorodibromomethane (Dibromochloromethane)	0.080	0.500	ND	ND	ND	ND	ND
Chloroethane	0.103	1.000	ND	ND	ND	ND	ND
Chloroform (Trichloromethane)	0.062	0.500	26.4	10.2	3.4	0.9	10.7
Chloromethane (Methyl chloride)	0.066	0.500	ND	ND	ND	ND	ND
Dibromomethane	0.081	0.500	ND	ND	ND	ND	ND
1,2-Dichlorobenzene (o-Dichlorobenzene)	0.114	0.500	ND	ND	ND	ND	ND
1,3-Dichlorobenzene (m-Dichlorobenzene)	0.125	0.500	ND	ND	ND	ND	ND
1,4-Dichlorobenzene	0.146	0.500	ND	ND	ND	ND	ND
Dichlorodifluoromethane	0.070	1.000	ND	ND	ND	ND	ND
1,1-Dichloroethane	0.048	0.500	ND	ND	0.27J	ND	ND
1,2-Dichloroethane	0.077	0.500	6.4	19.1	12.4	36.7	19.5
1,1-Dichloroethene (1,1-Dichloroethylene)	0.046	0.500	0.26J	0.06J	1.8	ND	ND
cis-1,2-Dichloroethene	0.050	0.500	ND	ND	ND	ND	ND
trans-1,2-Dichloroethene	0.024	0.500	ND	ND	ND	ND	ND
1,2-Dichloropropane	0.092	0.500	ND	ND	ND	ND	ND
cis-1,3-Dichloropropene	0.085	0.500	ND	ND	ND	ND	ND
trans-1,3-Dichloropropene	0.099	0.500	ND	ND	ND	ND	ND
Ethylbenzene	0.074	0.500	ND	ND	ND	ND	ND
Methylene chloride (Dichloromethane, DCM)	0.333	1.000	ND	ND	ND	ND	ND



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ANALYTICAL RESULTS

Page: 3
Project ID: PILOT CHEMICAL

ASL Job Number	Submitted	Client
35729	10/30/2007	PACIFIC

Method: 601/602, Halogenated and Aromatic Volatile Compounds

QC Batch No: 110107-1

Our Lab I.D.		207468	207469	207470	207472	207473
Client Sample I.D.		MW-6	MW-8	MW-11	MW-7	DUP
Date Sampled		10/30/2007	10/30/2007	10/30/2007	10/30/2007	10/30/2007
Date Prepared		11/01/2007	11/01/2007	11/01/2007	11/01/2007	11/02/2007
Preparation Method						
Date Analyzed		11/01/2007	11/01/2007	11/01/2007	11/01/2007	11/02/2007
Matrix		Water	Water	Water	Water	Water
Units		ug/L	ug/L	ug/L	ug/L	ug/L
Dilution Factor		1	1	1	1	1
Analytes	MDL	PQL	Results	Results	Results	Results
1,1,1,2-Tetrachloroethane	0.060	0.500	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	0.182	0.500	ND	ND	ND	ND
Tetrachloroethene (Tetrachloroethylene)	0.093	0.500	7.1	1.9	18.7	0.9
Toluene (Methyl benzene)	0.092	0.500	ND	ND	ND	24.2
1,1,1-Trichloroethane	0.062	0.500	ND	ND	ND	ND
1,1,2-Trichloroethane	0.105	0.500	ND	ND	ND	ND
Trichloroethene (TCE)	0.046	0.500	2.0	1.4	3.1	1.8
Trichlorofluoromethane	0.103	0.500	ND	ND	ND	ND
Vinyl chloride (Chloroethene)	0.060	0.500	ND	ND	ND	ND
Xylenes, total	0.059	1.000	ND	59.5	ND	116

Our Lab I.D.		207468	207469	207470	207472	207473
Surrogates	% Rec.Limit	% Rec.	% Rec.	% Rec.	% Rec.	% Rec.
Surrogate Percent Recovery						
Bromofluorobenzene	70-120	112	112	114	119	105

QUALITY CONTROL REPORT

QC Batch No: 110107-1

Analytes	MS % REC	MS DUP % REC	RPD %	MS/MSD % Limit	MS RPD % Limit				
Benzene	96	99	3.1	75-120	15				
Chlorobenzene	99	103	4.0	75-120	15				
1,1-Dichloroethene (1,1-Dichloroethylene)	94	98	4.2	75-120	15				
Toluene (Methyl benzene)	100	103	3.0	75-120	15				
Trichloroethene (TCE)	106	110	3.7	75-120	15				



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ANALYTICAL RESULTS

Ordered By

Pacific Edge Engineering, Inc.
26691 Plaza, Suite 270
Mission Viejo, CA 92691-

Site

11756 Burke Street
Santa Fe Springs, CA

Telephone: (949)470-1937

Attn: Craig Stolz

Page: 4

Project ID: PILOT CHEMICAL

ASL Job Number	Submitted	Client
35729	10/30/2007	PACIFIC

Method: 601/602, Halogenated and Aromatic Volatile Compounds

QC Batch No: 110107-1

Our Lab I.D.			207467			
Client Sample I.D.			MW-5			
Date Sampled			10/30/2007			
Date Prepared			11/01/2007			
Preparation Method						
Date Analyzed			11/01/2007			
Matrix			Water			
Units			ug/L			
Dilution Factor			5			
Analytes	MDL	PQL	Results			
Benzene	0.320	2.500	ND			
Bromobenzene (Phenyl bromide)	0.850	2.500	ND			
Bromodichloromethane (Dichlorobromomethane)	0.350	2.500	ND			
Bromoform (Tribromomethane)	1.000	2.500	ND			
Bromomethane (Methyl bromide)	0.570	2.500	ND			
Carbon tetrachloride (Tetrachloromethane)	0.310	2.500	78			
Chlorobenzene	0.300	2.500	ND			
Chlorodibromomethane (Dibromochloromethane)	0.400	2.500	ND			
Chloroethane	0.515	5	ND			
Chloroform (Trichloromethane)	0.310	2.500	41			
Chloromethane (Methyl chloride)	0.330	2.500	ND			
Dibromomethane	0.405	2.500	ND			
1,2-Dichlorobenzene (o-Dichlorobenzene)	0.570	2.500	ND			
1,3-Dichlorobenzene (m-Dichlorobenzene)	0.625	2.500	ND			
1,4-Dichlorobenzene	0.730	2.500	ND			
Dichlorodifluoromethane	0.350	5	ND			
1,1-Dichloroethane	0.240	2.500	ND			
1,2-Dichloroethane	0.385	2.500	ND			
1,1-Dichloroethene (1,1-Dichloroethylene)	0.230	2.500	ND			
cis-1,2-Dichloroethene	0.250	2.500	ND			
trans-1,2-Dichloroethene	0.120	2.500	ND			
1,2-Dichloropropane	0.460	2.500	ND			
cis-1,3-Dichloropropene	0.425	2.500	ND			
trans-1,3-Dichloropropene	0.495	2.500	ND			
Ethylbenzene	0.370	2.500	ND			
Methylene chloride (Dichloromethane, DCM)	1.665	5	ND			



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ANALYTICAL RESULTS

Page: 5
Project ID: PILOT CHEMICAL

ASL Job Number	Submitted	Client
35729	10/30/2007	PACIFIC

Method: 601/602, Halogenated and Aromatic Volatile Compounds

QC Batch No: 110107-1

Our Lab I.D.		207467				
Client Sample I.D.		MW-5				
Date Sampled		10/30/2007				
Date Prepared		11/01/2007				
Preparation Method						
Date Analyzed		11/01/2007				
Matrix		Water				
Units		ug/L				
Dilution Factor		5				
Analytes	MDL	PQL	Results			
1,1,1,2-Tetrachloroethane	0.300	2.500	ND			
1,1,2,2-Tetrachloroethane	0.910	2.500	ND			
Tetrachloroethene (Tetrachloroethylene)	0.465	2.500	4			
Toluene (Methyl benzene)	0.460	2.500	ND			
1,1,1-Trichloroethane	0.310	2.500	ND			
1,1,2-Trichloroethane	0.525	2.500	ND			
Trichloroethene (TCE)	0.230	2.500	1.6J			
Trichlorofluoromethane	0.515	2.500	ND			
Vinyl chloride (Chloroethene)	0.300	2.500	ND			
Xylenes, total	0.295	5	6			

Our Lab I.D.		207467				
Surrogates	% Rec.Limit	% Rec.				
Surrogate Percent Recovery						
Bromofluorobenzene	70-120	92				

QUALITY CONTROL REPORT

QC Batch No: 110107-1

Analytes	MS % REC	MS DUP % REC	RPD %	MS/MSD % Limit	MS RPD % Limit				
Benzene	96	99	3.1	75-120	15				
Chlorobenzene	99	103	4.0	75-120	15				
1,1-Dichloroethene (1,1-Dichloroethylene)	94	98	4.2	75-120	15				
Toluene (Methyl benzene)	100	103	3.0	75-120	15				
Trichloroethene (TCE)	106	110	3.7	75-120	15				



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Environmental Testing Services

2520 N. San Fernando Rd., Los Angeles, CA 90065 Tel: (323) 223-9700 Fax: (323) 223-9500

ANALYTICAL RESULTS

Ordered By

Pacific Edge Engineering, Inc.
26691 Plaza, Suite 270
Mission Viejo, CA 92691

Site

11756 Burke Street
Santa Fe Springs, CA

Telephone: (949)470-1937

Attn: Craig Stolz

Page: 6

Project ID: PILOT CHEMICAL

ASL Job Number	Submitted	Client
35729	10/30/2007	PACIFIC

Method: 601/602, Halogenated and Aromatic Volatile Compounds

QC Batch No: 110107-1

Our Lab I.D.		207466				
Client Sample I.D.		MW-1				
Date Sampled		10/30/2007				
Date Prepared		11/01/2007				
Preparation Method						
Date Analyzed		11/01/2007				
Matrix		Water				
Units		ug/L				
Dilution Factor		1000				
Analytes	MDL	PQL	Results			
Benzene	64	500	ND			
Bromobenzene (Phenyl bromide)	170	500	ND			
Bromodichloromethane (Dichlorobromomethane)	70	500	ND			
Bromoform (Tribromomethane)	200	500	ND			
Bromomethane (Methyl bromide)	114	500	ND			
Carbon tetrachloride (Tetrachloromethane)	62	500	ND			
Chlorobenzene	60	500	ND			
Chlorodibromomethane (Dibromochloromethane)	80	500	ND			
Chloroethane	103	1000	ND			
Chloroform (Trichloromethane)	62	500	ND			
Chloromethane (Methyl chloride)	66	500	ND			
Dibromomethane	81	500	ND			
1,2-Dichlorobenzene (o-Dichlorobenzene)	114	500	ND			
1,3-Dichlorobenzene (m-Dichlorobenzene)	125	500	ND			
1,4-Dichlorobenzene	146	500	ND			
Dichlorodifluoromethane	70	1000	ND			
1,1-Dichloroethane	48	500	ND			
1,2-Dichloroethane	77	500	802			
1,1-Dichloroethene (1,1-Dichloroethylene)	46	500	ND			
cis-1,2-Dichloroethene	50	500	ND			
trans-1,2-Dichloroethene	24	500	ND			
1,2-Dichloropropane	92	500	ND			
cis-1,3-Dichloropropene	85	500	ND			
trans-1,3-Dichloropropene	99	500	ND			
Ethylbenzene	74	500	16100			
Methylene chloride (Dichloromethane, DCM)	333	1000	ND			



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ANALYTICAL RESULTS

Page: 7

Project ID: PILOT CHEMICAL

ASL Job Number	Submitted	Client
35729	10/30/2007	PACIFIC

Method: 601/602, Halogenated and Aromatic Volatile Compounds

QC Batch No: 110107-1

Our Lab I.D.	207466				
Client Sample I.D.	MW-1				
Date Sampled	10/30/2007				
Date Prepared	11/01/2007				
Preparation Method					
Date Analyzed	11/01/2007				
Matrix	Water				
Units	ug/L				
Dilution Factor	1000				
Analytes	MDL	PQL	Results		
1,1,1,2-Tetrachloroethane	60	500	ND		
1,1,2,2-Tetrachloroethane	182	500	ND		
Tetrachloroethene (Tetrachloroethylene)	93	500	ND		
Toluene (Methyl benzene)	92	500	57100		
1,1,1-Trichloroethane	62	500	ND		
1,1,2-Trichloroethane	105	500	ND		
Trichloroethene (TCE)	46	500	60J		
Trichlorofluoromethane	103	500	ND		
Vinyl chloride (Chloroethene)	60	500	ND		
Xylenes, total	59	1000	93600		

Our Lab I.D.	207466				
Surrogates	% Rec.Limit	% Rec.			
Surrogate Percent Recovery					
Bromofluorobenzene	70-120	99			

QUALITY CONTROL REPORT

QC Batch No: 110107-1

Analytes	MS % REC	MS DUP % REC	RPD %	MS/MSD % Limit	MS RPD % Limit					
Benzene	96	99	3.1	75-120	15					
Chlorobenzene	99	103	4.0	75-120	15					
1,1-Dichloroethene (1,1-Dichloroethylene)	94	98	4.2	75-120	15					
Toluene (Methyl benzene)	100	103	3.0	75-120	15					
Trichloroethene (TCE)	106	110	3.7	75-120	15					



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Environmental Testing Services

2520 N. San Fernando Rd., Los Angeles, CA 90065 Tel: (323) 223-9700 Fax: (323) 223-9500

ANALYTICAL RESULTS

Ordered By

Pacific Edge Engineering, Inc.
26691 Plaza, Suite 270
Mission Viejo, CA 92691-

Telephone: (949)470-1937

Attn: Craig Stolz

Page: 8

Project ID: PILOT CHEMICAL

Site

11756 Burke Street
Santa Fe Springs, CA

ASL Job Number	Submitted	Client
35729	10/30/2007	PACIFIC

Method: 601/602, Halogenated and Aromatic Volatile Compounds

QC Batch No: 110507-2

Our Lab I.D.			207471			
Client Sample I.D.			MW-10			
Date Sampled			10/30/2007			
Date Prepared			11/06/2007			
Preparation Method						
Date Analyzed			11/06/2007			
Matrix			Water			
Units			ug/L			
Dilution Factor			250			
Analytes	MDL	PQL	Results			
Benzene	16	125	ND			
Bromobenzene (Phenyl bromide)	42	125	ND			
Bromodichloromethane (Dichlorobromomethane)	17	125	ND			
Bromoform (Tribromomethane)	50	125	ND			
Bromomethane (Methyl bromide)	28	125	ND			
Carbon tetrachloride (Tetrachloromethane)	15	125	ND			
Chlorobenzene	15	125	ND			
Chlorodibromomethane (Dibromochloromethane)	20	125	ND			
Chloroethane	25	250	ND			
Chloroform (Trichloromethane)	15	125	ND			
Chloromethane (Methyl chloride)	16	125	ND			
Dibromomethane	20	125	ND			
1,2-Dichlorobenzene (o-Dichlorobenzene)	28	125	ND			
1,3-Dichlorobenzene (m-Dichlorobenzene)	31	125	ND			
1,4-Dichlorobenzene	36	125	ND			
Dichlorodifluoromethane	17	250	ND			
1,1-Dichloroethane	12	125	ND			
1,2-Dichloroethane	19	125	5000			
1,1-Dichloroethene (1,1-Dichloroethylene)	11	125	ND			
cis-1,2-Dichloroethene	12	125	ND			
trans-1,2-Dichloroethene	6	125	ND			
1,2-Dichloropropane	23	125	ND			
cis-1,3-Dichloropropene	21	125	ND			
trans-1,3-Dichloropropene	24	125	ND			
Ethylbenzene	18	125	ND			
Methylene chloride (Dichloromethane, DCM)	83	250	ND			



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ANALYTICAL RESULTS

Page: 9
Project ID: PILOT CHEMICAL

ASL Job Number	Submitted	Client
35729	10/30/2007	PACIFIC

Method: 601/602, Halogenated and Aromatic Volatile Compounds

QC Batch No: 110507-2

Our Lab I.D.		207471					
Client Sample I.D.		MW-10					
Date Sampled		10/30/2007					
Date Prepared		11/06/2007					
Preparation Method							
Date Analyzed		11/06/2007					
Matrix		Water					
Units		ug/L					
Dilution Factor		250					
Analytes	MDL	PQL	Results				
1,1,1,2-Tetrachloroethane	15	125	ND				
1,1,2,2-Tetrachloroethane	45	125	ND				
Tetrachloroethene (Tetrachloroethylene)	23	125	ND				
Toluene (Methyl benzene)	23	125	ND				
1,1,1-Trichloroethane	15	125	ND				
1,1,2-Trichloroethane	26	125	ND				
Trichloroethene (TCE)	11	125	ND				
Trichlorofluoromethane	25	125	ND				
Vinyl chloride (Chloroethene)	15	125	ND				
Xylenes, total	14	250	1500				

Our Lab I.D.		207471					
Surrogates	% Rec.Limit	% Rec.					
Surrogate Percent Recovery							
Bromofluorobenzene	70-120	116					

QUALITY CONTROL REPORT

QC Batch No: 110507-2

Analytes	MS % REC	MS DUP % REC	RPD %	MS/MSD % Limit	MS RPD % Limit				
Benzene	99	96	3.1	75-120	15				
Chlorobenzene	105	101	3.9	75-120	15				
1,1-Dichloroethene (1,1-Dichloroethylene)	108	98	9.7	75-120	15				
Toluene (Methyl benzene)	103	100	3.0	75-120	15				
Trichloroethene (TCE)	110	110	<1	75-120	15				



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Environmental Testing Services

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Ordered By

Pacific Edge Engineering, Inc.
26691 Plaza, Suite 270
Mission Viejo, CA 92691-

Number of Pages 12
Date Received 10/29/2007
Date Reported 11/05/2007

Telephone (949) 470-1937
Attn Craig Stolz

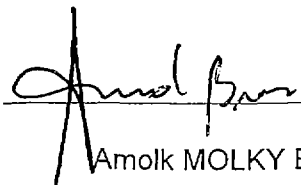
Job Number	Ordered	Client
35716	10/29/2007	PACIFIC

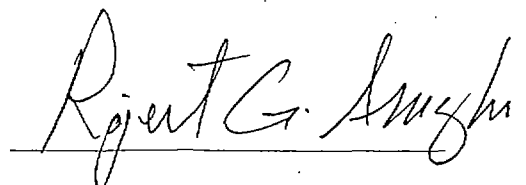
Project ID: PILOT CHEMICAL

Project Name:

Site: 11756 Burke St.
Santa Fe Springs, CA

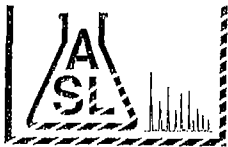
Enclosed are the results of analyses on 4 samples analyzed as specified on attached chain of custody.


Amolk MOLKY Brar
Laboratory Manager


Rojert G. Araghi
Laboratory Director

American Scientific Laboratories, LLC (ASL) accepts sample materials from clients for analysis with the assumption that all of the information provided to ASL verbally or in writing by our clients (and/or their agents), regarding samples being submitted to ASL, is complete and accurate. ASL accepts all samples subject to the following conditions:

- 1) ASL is not responsible for verifying any client-provided information regarding any samples submitted to the laboratory.
- 2) ASL is not responsible for any consequences resulting from any inaccuracies, omissions, or misrepresentations contained in client-provided information regarding samples submitted to the laboratory.



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Page 1 Of 1

COC# Nº 42223 GLOBAL ID _____ E REPORT: ☐ PDF ☐ EDF ☐ EDD ASL JOB# 35716

Company: <u>Pacific Edge Engineering</u>		Report To: <u>RM</u>	ANALYSIS REQUESTED										
Address: <u>26691 Plaza #270</u>		Project Name: <u>Pilot Chemical</u>	Address: <u>SAA</u>		<u>425.1 Surfactants</u> <u>150.1 PH</u> <u>TPH Diesel</u> <u>601 + 602</u>								
Mission <u>Vieja, CA, 92691</u>		Site Address: <u>11756 Burke St.</u>	Invoice To:										
Telephone: <u>949 470 1937</u>		Address:											
Fax: <u>949 470 0943</u>		Project ID:											
Special Instruction:		Project Manager: <u>Craig Stoliz</u>		P.O.#:									
E-mail:													

ITEM	LAB USE ONLY	SAMPLE DESCRIPTION				Container(s)		Matrix	Preservation											Remarks
	Lab ID	Sample ID	Date	Time	#	Type														
	207370	MW-9	10/29/07	12:14	3	VOA Amber Plastic		H ₂ O	none	X	X	X	X							
	207371	MW-4	↙	12:59	3	↙		↙	↙	X	X	X	X							
	207372	MW-3	↙	1:32	3	↙		↙	↙	X	X	X	X							
	207373	MW-2	↙	2:32	3	↙		↙	↙	X	X	X	X							

Collected By: <u>Scott Miller</u>	Date <u>10/29/07</u> Time <u>as above</u>	Relinquished By:	Date _____ Time _____	TAT
Relinquished By: <u>Scott Miller</u>	Date <u>10/29/07</u> Time <u>3:10</u>	Received For Laboratory <u>AM</u>	Date <u>10/29/07</u> Time <u>15:20</u>	<input checked="" type="checkbox"/> Normal
Received By:	Date _____ Time _____	Condition of Sample:		<input type="checkbox"/> Rush

C H A I N O F C U S T O D Y R E C O R D



AMERICAN SCIENTIFIC LABORATORIES, LLC

Environmental Testing Services

2520 N. San Fernando Rd., Los Angeles, CA 90065 Tel: (323) 223-9700 Fax: (323) 223-9500

ANALYTICAL RESULTS

Ordered By

Pacific Edge Engineering, Inc.
26691 Plaza, Suite 270
Mission Viejo, CA 92691-

Site

11756 Burke St.
Santa Fe Springs, CA

Telephone: (949)470-1937

Attn: Craig Stolz

Page: 2

Project ID: PILOT CHEMICAL

ASL Job Number	Submitted	Client
35716	10/29/2007	PACIFIC

Method: 601/602, Halogenated and Aromatic Volatile Compounds

QC Batch No: 103107-1

Our Lab I.D.			207371			
Client Sample I.D.			MW-4			
Date Sampled			10/29/2007			
Date Prepared			10/31/2007			
Preparation Method						
Date Analyzed			10/31/2007			
Matrix			Water			
Units			ug/L			
Dilution Factor			1			
Analytes	MDL	PQL	Results			
Benzene	0.064	0.500	ND			
Bromobenzene (Phenyl bromide)	0.170	0.500	ND			
Bromodichloromethane (Dichlorobromomethane)	0.070	0.500	ND			
Bromoform (Tribromomethane)	0.200	0.500	ND			
Bromomethane (Methyl bromide)	0.114	0.500	ND			
Carbon tetrachloride (Tetrachloromethane)	0.062	0.500	ND			
Chlorobenzene	0.060	0.500	ND			
Chlorodibromomethane (Dibromochloromethane)	0.080	0.500	ND			
Chloroethane	0.103	1.000	ND			
Chloroform (Trichloromethane)	0.062	0.500	0.15J			
Chloromethane (Methyl chloride)	0.066	0.500	ND			
Dibromomethane	0.081	0.500	ND			
1,2-Dichlorobenzene (o-Dichlorobenzene)	0.114	0.500	ND			
1,3-Dichlorobenzene (m-Dichlorobenzene)	0.125	0.500	ND			
1,4-Dichlorobenzene	0.146	0.500	ND			
Dichlorodifluoromethane	0.070	1.000	ND			
1,1-Dichloroethane	0.048	0.500	ND			
1,2-Dichloroethane	0.077	0.500	1.1			
1,1-Dichloroethene (1,1-Dichloroethylene)	0.046	0.500	ND			
cis-1,2-Dichloroethene	0.050	0.500	ND			
trans-1,2-Dichloroethene	0.024	0.500	ND			
1,2-Dichloropropane	0.092	0.500	ND			
cis-1,3-Dichloropropene	0.085	0.500	ND			
trans-1,3-Dichloropropene	0.099	0.500	ND			
Ethylbenzene	0.074	0.500	ND			
Methylene chloride (Dichloromethane, DCM)	0.333	1.000	ND			



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ANALYTICAL RESULTS

Page: 3
Project ID: PILOT CHEMICAL

ASL Job Number	Submitted	Client
35716	10/29/2007	PACIFIC

Method: 601/602, Halogenated and Aromatic Volatile Compounds

QC Batch No: 103107-1

Our Lab I.D.			207371				
Client Sample I.D.			MW-4				
Date Sampled			10/29/2007				
Date Prepared			10/31/2007				
Preparation Method							
Date Analyzed			10/31/2007				
Matrix			Water				
Units			ug/L				
Dilution Factor			1				
Analytes	MDL	PQL	Results				
1,1,1,2-Tetrachloroethane	0.060	0.500	ND				
1,1,2,2-Tetrachloroethane	0.182	0.500	ND				
Tetrachloroethene (Tetrachloroethylene)	0.093	0.500	0.7				
Toluene (Methyl benzene)	0.092	0.500	ND				
1,1,1-Trichloroethane	0.062	0.500	ND				
1,1,2-Trichloroethane	0.105	0.500	ND				
Trichloroethene (TCE)	0.046	0.500	1.5				
Trichlorofluoromethane	0.103	0.500	ND				
Vinyl chloride (Chloroethene)	0.060	0.500	ND				
Xylenes, total	0.059	1.000	14.4				

Our Lab I.D.			207371				
Surrogates	% Rec.Limit		% Rec.				
Surrogate Percent Recovery							
Bromofluorobenzene	70-120		112				

QUALITY CONTROL REPORT

QC Batch No: 103107-1

Analytes	MS % REC	MS DUP % REC	RPD %	MS/MSD % Limit	MS RPD % Limit					
Benzene	95	101	6.1	75-120	15					
Chlorobenzene	98	105	6.9	75-120	15					
1,1-Dichloroethene (1,1-Dichloroethylene)	95	98	3.1	75-120	15					
Toluene (Methyl benzene)	95	101	6.1	75-120	15					
Trichloroethene (TCE)	106	111	4.6	75-120	15					



AMERICAN SCIENTIFIC LABORATORIES, LLC

Environmental Testing Services

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ANALYTICAL RESULTS

Ordered By

Pacific Edge Engineering, Inc.
26691 Plaza, Suite 270
Mission Viejo, CA 92691

Site

11756 Burke St.
Santa Fe Springs, CA

Telephone: (949)470-1937

Attn: Craig Stolz

Page: 4

Project ID: PILOT CHEMICAL

ASL Job Number	Submitted	Client
35716	10/29/2007	PACIFIC

Method: 601/602, Halogenated and Aromatic Volatile Compounds

QC Batch No: 103107-1

Our Lab I.D.			207370			
Client Sample I.D.			MW-9			
Date Sampled			10/29/2007			
Date Prepared			10/31/2007			
Preparation Method						
Date Analyzed			10/31/2007			
Matrix			Water			
Units			ug/L			
Dilution Factor			5			
Analytes	MDL	PQL	Results			
Benzene	0.320	2.500	ND			
Bromobenzene (Phenyl bromide)	0.850	2.500	ND			
Bromodichloromethane (Dichlorobromomethane)	0.350	2.500	ND			
Bromoform (Tribromomethane)	1.000	2.500	ND			
Bromomethane (Methyl bromide)	0.570	2.500	ND			
Carbon tetrachloride (Tetrachloromethane)	0.310	2.500	ND			
Chlorobenzene	0.300	2.500	ND			
Chlorodibromomethane (Dibromochloromethane)	0.400	2.500	ND			
Chloroethane	0.515	5	ND			
Chloroform (Trichloromethane)	0.310	2.500	6.1			
Chloromethane (Methyl chloride)	0.330	2.500	ND			
Dibromomethane	0.405	2.500	ND			
1,2-Dichlorobenzene (o-Dichlorobenzene)	0.570	2.500	ND			
1,3-Dichlorobenzene (m-Dichlorobenzene)	0.625	2.500	ND			
1,4-Dichlorobenzene	0.730	2.500	ND			
Dichlorodifluoromethane	0.350	5	ND			
1,1-Dichloroethane	0.240	2.500	49.1			
1,2-Dichloroethane	0.385	2.500	7.8			
1,1-Dichloroethene (1,1-Dichloroethylene)	0.230	2.500	3.1			
cis-1,2-Dichloroethene	0.250	2.500	5.8			
trans-1,2-Dichloroethene	0.120	2.500	ND			
1,2-Dichloropropane	0.460	2.500	ND			
cis-1,3-Dichloropropene	0.425	2.500	ND			
trans-1,3-Dichloropropene	0.495	2.500	ND			
Ethylbenzene	0.370	2.500	ND			
Methylene chloride (Dichloromethane, DCM)	1.665	5	ND			



AMERICAN SCIENTIFIC LABORATORIES, LLC
Environmental Testing Services

2520 N. San Fernando Rd., Los Angeles, CA 90065 Tel: (323) 223-9700 Fax: (323) 223-9500

ANALYTICAL RESULTS

Page: 5

Project ID: PILOT CHEMICAL

ASL Job Number	Submitted	Client
35716	10/29/2007	PACIFIC

Method: 601/602, Halogenated and Aromatic Volatile Compounds

QC Batch No: 103107-1

Our Lab I.D.		207370				
Client Sample I.D.		MW-9				
Date Sampled		10/29/2007				
Date Prepared		10/31/2007				
Preparation Method						
Date Analyzed		10/31/2007				
Matrix		Water				
Units		ug/L				
Dilution Factor		5				
Analytes	MDL	PQL	Results			
1,1,1,2-Tetrachloroethane	0.300	2.500	ND			
1,1,2,2-Tetrachloroethane	0.910	2.500	ND			
Tetrachloroethene (Tetrachloroethylene)	0.465	2.500	1.9J			
Toluene (Methyl benzene)	0.460	2.500	ND			
1,1,1-Trichloroethane	0.310	2.500	ND			
1,1,2-Trichloroethane	0.525	2.500	ND			
Trichloroethene (TCE)	0.230	2.500	206			
Trichlorofluoromethane	0.515	2.500	ND			
Vinyl chloride (Chloroethene)	0.300	2.500	ND			
Xylenes, total	0.295	5	ND			

Our Lab I.D.		207370				
Surrogates	% Rec.Limit	% Rec.				
Surrogate Percent Recovery						
Bromofluorobenzene	70-120	116				

QUALITY CONTROL REPORT

QC Batch No: 103107-1

Analytes	MS % REC	MS DUP % REC	RPD %	MS/MSD % Limit	MS RPD % Limit				
Benzene	95	101	6.1	75-120	15				
Chlorobenzene	98	105	6.9	75-120	15				
1,1-Dichloroethene (1,1-Dichloroethylene)	95	98	3.1	75-120	15				
Toluene (Methyl benzene)	95	101	6.1	75-120	15				
Trichloroethene (TCE)	106	111	4.6	75-120	15				



AMERICAN SCIENTIFIC LABORATORIES, LLC

Environmental Testing Services

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ANALYTICAL RESULTS

Ordered By

Pacific Edge Engineering, Inc.
26691 Plaza, Suite 270
Mission Viejo, CA 92691

Site

11756 Burke St.
Santa Fe Springs, CA

Telephone: (949)470-1937

Attn: Craig Stolz

Page: 6

Project ID: PILOT CHEMICAL

ASL Job Number	Submitted	Client
35716	10/29/2007	PACIFIC

Method: 601/602, Halogenated and Aromatic Volatile Compounds

QC Batch No: 103107-1

Our Lab I.D.			207372			
Client Sample I.D.			MW-3			
Date Sampled			10/29/2007			
Date Prepared			10/31/2007			
Preparation Method						
Date Analyzed			10/31/2007			
Matrix			Water			
Units			ug/L			
Dilution Factor			250			
Analytes	MDL	PQL	Results			
Benzene	16	125	ND			
Bromobenzene (Phenyl bromide)	42	125	ND			
Bromodichloromethane (Dichlorobromomethane)	17	125	ND			
Bromoform (Tribromomethane)	50	125	ND			
Bromomethane (Methyl bromide)	28	125	ND			
Carbon tetrachloride (Tetrachloromethane)	15	125	ND			
Chlorobenzene	15	125	ND			
Chlorodibromomethane (Dibromochloromethane)	20	125	ND			
Chloroethane	25	250	ND			
Chloroform (Trichloromethane)	15	125	ND			
Chloromethane (Methyl chloride)	16	125	ND			
Dibromomethane	20	125	ND			
1,2-Dichlorobenzene (o-Dichlorobenzene)	28	125	ND			
1,3-Dichlorobenzene (m-Dichlorobenzene)	31	125	ND			
1,4-Dichlorobenzene	36	125	ND			
Dichlorodifluoromethane	17	250	ND			
1,1-Dichloroethane	12	125	ND			
1,2-Dichloroethane	19	125	52.5J			
1,1-Dichloroethene (1,1-Dichloroethylene)	11	125	ND			
cis-1,2-Dichloroethene	12	125	ND			
trans-1,2-Dichloroethene	6	125	ND			
1,2-Dichloropropane	23	125	ND			
cis-1,3-Dichloropropene	21	125	ND			
trans-1,3-Dichloropropene	24	125	ND			
Ethylbenzene	18	125	4250			
Methylene chloride (Dichloromethane, DCM)	83	250	ND			



AMERICAN SCIENTIFIC LABORATORIES, LLC
Environmental Testing Services

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ANALYTICAL RESULTS

Page: 7

Project ID: PILOT CHEMICAL

ASL Job Number	Submitted	Client
35716	10/29/2007	PACIFIC

Method: 601/602, Halogenated and Aromatic Volatile Compounds

QC Batch No: 103107-1

Our Lab I.D.		207372				
Client Sample I.D.		MW-3				
Date Sampled		10/29/2007				
Date Prepared		10/31/2007				
Preparation Method						
Date Analyzed		10/31/2007				
Matrix		Water				
Units		ug/L				
Dilution Factor		250				
Analytes	MDL	PQL	Results			
1,1,1,2-Tetrachloroethane	15	125	ND			
1,1,2,2-Tetrachloroethane	45	125	ND			
Tetrachloroethene (Tetrachloroethylene)	23	125	ND			
Toluene (Methyl benzene)	23	125	8900			
1,1,1-Trichloroethane	15	125	ND			
1,1,2-Trichloroethane	26	125	ND			
Trichloroethene (TCE)	11	125	ND			
Trichlorofluoromethane	25	125	ND			
Vinyl chloride (Chloroethene)	15	125	ND			
Xylenes, total	14	250	14400			

Our Lab I.D.		207372				
Surrogates	% Rec.Limit	% Rec.				
Surrogate Percent Recovery						
Bromofluorobenzene	70-120	102				

QUALITY CONTROL REPORT

QC Batch No: 103107-1

Analytes	MS % REC	MS DUP % REC	RPD %	MS/MSD % Limit	MS RPD % Limit				
Benzene	95	101	6.1	75-120	15				
Chlorobenzene	98	105	6.9	75-120	15				
1,1-Dichloroethene (1,1-Dichloroethylene)	95	98	3.1	75-120	15				
Toluene (Methyl benzene)	95	101	6.1	75-120	15				
Trichloroethene (TCE)	106	111	4.6	75-120	15				



AMERICAN SCIENTIFIC LABORATORIES, LLC

Environmental Testing Services

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ANALYTICAL RESULTS

Ordered By

Pacific Edge Engineering, Inc.
26691 Plaza, Suite 270
Mission Viejo, CA 92691

Telephone: (949)470-1937

Attn: Craig Stolz

Page: 8

Project ID: PILOT CHEMICAL

Site

11756 Burke St.
Santa Fe Springs, CA

ASL Job Number	Submitted	Client
35716	10/29/2007	PACIFIC

Method: 601/602, Halogenated and Aromatic Volatile Compounds

QC Batch No: 103107-1

Our Lab I.D.		207373				
Client Sample I.D.		MW-2				
Date Sampled		10/29/2007				
Date Prepared		10/31/2007				
Preparation Method						
Date Analyzed		10/31/2007				
Matrix		Water				
Units		ug/L				
Dilution Factor		500				
Analytes	MDL	PQL	Results			
Benzene	32	250	ND			
Bromobenzene (Phenyl bromide)	85	250	ND			
Bromodichloromethane (Dichlorobromomethane)	35	250	ND			
Bromoform (Tribromomethane)	100	250	ND			
Bromomethane (Methyl bromide)	57	250	ND			
Carbon tetrachloride (Tetrachloromethane)	31	250	ND			
Chlorobenzene	30	250	ND			
Chlorodibromomethane (Dibromochloromethane)	40	250	ND			
Chloroethane	51	500	ND			
Chloroform (Trichloromethane)	31	250	ND			
Chloromethane (Methyl chloride)	33	250	ND			
Dibromomethane	40	250	ND			
1,2-Dichlorobenzene (o-Dichlorobenzene)	57	250	ND			
1,3-Dichlorobenzene (m-Dichlorobenzene)	62	250	ND			
1,4-Dichlorobenzene	73	250	ND			
Dichlorodifluoromethane	35	500	ND			
1,1-Dichloroethane	24	250	ND			
1,2-Dichloroethane	38	250	840			
1,1-Dichloroethene (1,1-Dichloroethylene)	23	250	ND			
cis-1,2-Dichloroethene	25	250	ND			
trans-1,2-Dichloroethene	12	250	ND			
1,2-Dichloropropane	46	250	ND			
cis-1,3-Dichloropropene	42	250	ND			
trans-1,3-Dichloropropene	49	250	ND			
Ethylbenzene	37	250	7000			
Methylene chloride (Dichloromethane, DCM)	166	500	ND			



AMERICAN SCIENTIFIC LABORATORIES, LLC
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ANALYTICAL RESULTS

Page: 9

Project ID: PILOT CHEMICAL

ASL Job Number	Submitted	Client
35716	10/29/2007	PACIFIC

Method: 601/602, Halogenated and Aromatic Volatile Compounds

QC Batch No: 103107-1

Our Lab I.D.		207373				
Client Sample I.D.		MW-2				
Date Sampled		10/29/2007				
Date Prepared		10/31/2007				
Preparation Method						
Date Analyzed		10/31/2007				
Matrix		Water				
Units		ug/L				
Dilution Factor		500				
Analytes	MDL	PQL	Results			
1,1,1,2-Tetrachloroethane	30	250	ND			
1,1,2,2-Tetrachloroethane	91	250	ND			
Tetrachloroethene (Tetrachloroethylene)	46	250	ND			
Toluene (Methyl benzene)	46	250	45000			
1,1,1-Trichloroethane	31	250	ND			
1,1,2-Trichloroethane	52	250	ND			
Trichloroethene (TCE)	23	250	ND			
Trichlorofluoromethane	51	250	ND			
Vinyl chloride (Chloroethene)	30	250	ND			
Xylenes, total	29	500	33200			

Our Lab I.D.		207373				
Surrogates	% Rec.Limit	% Rec.				
Surrogate Percent Recovery						
Bromofluorobenzene	70-120	102				

QUALITY CONTROL REPORT

QC Batch No: 103107-1

Analytes	MS % REC	MS DUP % REC	RPD %	MS/MSD % Limit	MS RPD % Limit				
Benzene	95	101	6.1	75-120	15				
Chlorobenzene	98	105	6.9	75-120	15				
1,1-Dichloroethene (1,1-Dichloroethylene)	95	98	3.1	75-120	15				
Toluene (Methyl benzene)	95	101	6.1	75-120	15				
Trichloroethene (TCE)	106	111	4.6	75-120	15				

Appendix C

SCAQMD Permit To Operate



PACIFIC EDGE ENGINEERING

(949) 470-1937; (949) 470-0943 (FAX)

report_text.doc



SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
21865 Copley Drive, Diamond Bar, CA 91765

PERMIT TO CONSTRUCT/OPERATE

Page 2
Permit No.
F79A22
A/N 449796

- A. THE PERMIT NUMBER OF THE EQUIPMENT.
 - B. THE NAME AND PHONE NUMBER OF A CONTACT PERSON.
 - C. THE PROJECT START DATE AND THE ESTIMATED PROJECT COMPLETION DATE.
5. UPON COMPLETION, ANY VAPOR EXTRACTION WELL (S) AND DUCT (S) SHALL BE CAPPED TO PREVENT VAPORS FROM VENTING TO THE ATMOSPHERE. VAPORS SHALL NOT BE EXTRACTED FROM THE SOIL, UNLESS VENTED TO THE VAPOR CONTROL SYSTEM.
 6. AN IDENTIFICATION TAG OR NAME PLATE SHALL BE DISPLAYED ON THE EQUIPMENT TO SHOW MANUFACTURER MODEL NO. AND SERIAL NO. THE TAG OR NAMEPLATE SHALL BE ISSUED BY THE MANUFACTURER AND SHALL BE AFFIXED TO THE EQUIPMENT IN A PERMANENT AND CONSPICUOUS POSITION.
 7. A CONTINUOUS FLOW INDICATOR AND RECORDER SHALL BE MAINTAINED AT ALL INLET STREAM (S) TO CARBON ADSORBERS TO INDICATE THE TOTAL AIR FLOW RATE IN STANDARD CUBIC FEET PER MINUTE (SCFM). IN CASE A PRESSURE SENSOR DEVICE IS USED IN PLACE OF THE FLOW INDICATOR, A CONVERSION CHART SHALL BE AVAILABLE TO INDICATE THE CORRESPONDENT FLOW RATE, IN SCFM, TO THE PRESSURE READING. FLOW SHALL BE RECORDED DURING EACH MONITORING VISIT.
 8. THE TOTAL FLOW RATE MEASURED FOR THE CARBON ADSORBERS SHALL NOT EXCEED 250 SCFM.
 9. THE EXTRACTION BLOWER SHALL ONLY BE OPERATED WHEN ALL EXTRACTED VAPORS ARE VENTED TO TWO CARBON ADSORBERS CONNECTED IN SERIES WITH AT LEAST A TOTAL OF 4,000 POUNDS OF ACTIVATED CARBON.
 10. THE CARBON ADSORPTION SYSTEM SHALL EXHAUST THROUGH A STACK WITH A HEIGHT OF AT LEAST 13 FEET MEASURED FROM THE GROUND.
 11. SAMPLES SHALL BE COLLECTED AND ANALYZED ONCE DURING THE FIRST WEEK OF OPERATION FOR VOLATILE ORGANIC COMPOUNDS AND SPECIATED FOR BENZENE, AS FOLLOWS:
 - A. SAMPLES SHALL BE COLLECTED AT THE INLET AND OUTLET OF THE CARBON ADSORPTION SYSTEM.
 - B. SAMPLING AND ANALYSIS SHALL BE CONDUCTED BY AN INDEPENDENT LABORATORY PER RULE 304.
 - C. SAMPLING SHALL CONFORM TO CARB METHOD 422 OR EQUIVALENT. SAMPLES WITH HIGH MOISTURE SHALL BE COLLECTED USING AN APPROPRIATE METHOD SUCH AS SCAQMD METHOD 25.1/25.3 OR OTHER METHODS APPROVED BY SCAQMD.
 - D. ANALYSIS SHALL BE CONDUCTED USING EPA METHOD 8015/8021 AND EPA METHOD 8260 OR OTHER METHOD APPROVED BY SCAQMD.

ORIGINAL



SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
21065 Copley Drive, Diamond Bar, CA 91765

PERMIT TO CONSTRUCT/OPERATE

Page 3
Permit No.
F79822
A/TN 449796

12. SAMPLES SHALL BE COLLECTED AND ANALYZED ONCE EACH MONTH OF OPERATION FOR VOLATILE ORGANIC COMPOUNDS AND SPECIATED FOR BENZENE AS FOLLOWS:
- A. SAMPLES SHALL BE COLLECTED AT THE INLET AND OUTLET OF THE CARBON ADSORPTION SYSTEM.
 - B. SAMPLING SHALL CONFORM TO CARB METHOD 422 OR EQUIVALENT. SAMPLES WITH HIGH MOISTURE SHALL BE COLLECTED USING AN APPROPRIATE METHOD SUCH AS SCAQMD METHOD 25.1/25.3 OR OTHER METHODS APPROVED BY SCAQMD.
 - C. ANALYSIS SHALL BE CONDUCTED USING EPA METHOD 8015/8021 AND EPA METHOD 8260 OR OTHER METHOD APPROVED BY SCAQMD.
13. TOTAL ORGANIC COMPOUNDS (TOC) CONCENTRATION SHALL BE MEASURED AT THE INLET AND OUTLET OF THE PRIMARY AND SECONDARY CARBON ADSORBERS AT LEAST EVERY OPERATING DAY FOR THE FIRST 7 DAYS AND ACCORDING TO THE FOLLOWING MONITORING SCHEDULE THEREAFTER, BY USING A FLAME IONIZATION DETECTOR (FID), OR A PHOTOIONIZATION DETECTOR (PID) OR SCAQMD APPROVED ORGANIC VAPOR ANALYZER CALIBRATED IN PARTS PER MILLION BY VOLUME (PPMV) OF HEXANE. (IF OTHER CALIBRATING AGENT WAS USED, IT SHALL BE CORRELATED TO AND EXPRESSED AS HEXANE). THE ANALYSER SHALL MEET EPA METHOD 21 REQUIREMENTS. CALIBRATION OF THE ANALYSER SHALL BE PERFORMED PRIOR TO EACH MONITORING VISIT.

INLET TOC CONCENTRATION (PPM)	MONITORING FREQUENCY
<194	EVERY 7 DAYS
195 - 227	EVERY 6 DAYS
228 - 272	EVERY 5 DAYS
273 - 340	EVERY 4 DAYS
341 - 453	EVERY 3 DAYS
454 - 680	EVERY 2 DAYS
681 - 1360	DAILY

14. THE CONCENTRATION OF TOTAL ORGANIC COMPOUNDS (TOC) AT THE INLET OF THE CARBON ADSORPTION SYSTEM SHALL NOT EXCEED 1360 PPMV, MEASURED AS HEXANE.
15. CONCENTRATIONS MEASURED AT THE OUTLET OF THE SECONDARY ADSORBER SHALL NOT EXCEED THE FOLLOWINGS:

COMPOUND	CONCENTRATION IN PPMV
TOC, AS HEXANE	13.6
BENZENE	0.45

ORIGINAL



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21865 Copley Drive, Diamond Bar, CA 91765

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Page 4
Permit No.
F79822
A/N 449796

16. WHENEVER THE VOC CONCENTRATION AT THE OUTLET OF THE PRIMARY ADSORBER REACHES 13.6 PPMV, AS HEXANE, THEN THE CARBON SHALL BE REPLACED AS FOLLOWS:
- A. PRIMARY ADSORBER REPLACED WITH EITHER FRESH ADSORBENT OR ADSORBENT FROM THE SECONDARY ADSORBER.
 - B. SECONDARY ADSORBER REPLACED WITH FRESH ADSORBENT.
17. THIS EQUIPMENT SHALL NOT BE OPERATED TO EXTRACT AND TREAT ANY CARCINOGENIC COMPOUNDS LISTED IN TABLE I, UNDER RULE 1401, AMENDED ON MARCH 4, 2005, WITH THE EXCEPTION OF BENZENE.
18. A TEMPERATURE GAUGE SHALL BE INSTALLED AND MAINTAINED TO INDICATE THE TEMPERATURE AT THE INLET OF THE CARBON ADSORPTION SYSTEM.
19. THE TEMPERATURE AT THE INLET OF THE CARBON ADSORPTION SYSTEM SHALL NOT EXCEED 140 DEGREES FAHRENHEIT.
20. THE ACTIVATED CARBON USED IN THE ADSORBER SHALL HAVE A CARBON TETRACHLORIDE (CTC) NO. OF NOT LESS THAN 60% AS MEASURED BY ASTM METHOD D3467.
21. SPENT CARBON REMOVED FROM THE SYSTEM SHALL BE STORED IN CLOSED CONTAINERS PRIOR TO REMOVAL FROM SITE.
22. THE OPERATOR SHALL SUBMIT IN WRITING THE RESULTS OF THE FIRST WEEK GRAB SAMPLES' ANALYSIS, INLET FLOW RATE READINGS (SCFM) AND INLET AND OUTLET VOC CONCENTRATIONS. THE RESULTS SHALL BE SUBMITTED WITHIN 45 DAYS OF START-UP, TO THE ATTENTION OF:
- SCAQMD
TOXICS AND WASTE MANAGEMENT TEAM
21865 COPLEY DRIVE
DIAMOND BAR, CA 91765.
- THE SUBMITTAL SHALL INCLUDE A COPY OF THE ACTIVE PERMIT.
23. RECORDS SHALL BE MAINTAINED AS REQUIRED TO DETERMINE COMPLIANCE WITH THE PERMIT CONDITIONS. THE RECORDS SHALL BE KEPT FOR AT LEAST TWO YEARS AND MADE AVAILABLE TO AQMD PERSONNEL UPON REQUEST.

ORIGINAL



SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
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Page 5
Permit No.
F79922
AJN 449796

NOTICE

IN ACCORDANCE WITH RULE 206, THIS PERMIT TO OPERATE OR COPY SHALL BE POSTED ON OR WITHIN 8 METERS OF THE EQUIPMENT.

THIS PERMIT DOES NOT AUTHORIZE THE EMISSION OF AIR CONTAMINANTS IN EXCESS OF THOSE ALLOWED BY DIVISION 26 OF THE HEALTH AND SAFETY CODE OF THE STATE OF CALIFORNIA OR THE RULES OF THE AIR QUALITY MANAGEMENT DISTRICT. THIS PERMIT CANNOT BE CONSIDERED AS PERMISSION TO VIOLATE EXISTING LAWS, ORDINANCES, REGULATIONS OR STATUTES OF OTHER GOVERNMENT AGENCIES.

EXECUTIVE OFFICER

Dorris M. Bailey

By Dorris M. Bailey/AM01
12/15/2005

ORIGINAL

Appendix D

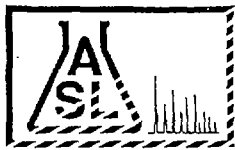
Vapor Laboratory Analytical Results and Chain-of-Custody



PACIFIC EDGE ENGINEERING

(949) 470-1937; (949) 470-0943 (FAX)

report_text.doc



AMERICAN SCIENTIFIC LABORATORIES, LLC
Environmental Testing Services

2520 N. San Fernando Rd., Los Angeles, CA 90065 Tel: (323) 223-9700 Fax: (323) 223-9500

Ordered By

Pacific Edge Engineering, Inc.
26691 Plaza, Suite 270
Mission Viejo, CA 92691-

Number of Pages 12

Date Received 07/26/2007

Date Reported 07/31/2007

Telephone (949) 470-1937
Attn Greg Dickinson

Job Number	Ordered	Client
34666	07/26/2007	PACIFIC

Project ID: 0105.0090.001.001
Project Name: Pilot Chemical Co.
Site: 11756 Burke St.
Santa Fe Springs, CA

Enclosed are the results of analyses on 4 samples analyzed as specified on attached chain of custody.

Wendy Lu
Organics Supervisor

Rojert G. Araghi
Laboratory Director

American Scientific Laboratories, LLC (ASL) accepts sample materials from clients for analysis with the assumption that all of the information provided to ASL verbally or in writing by our clients (and/or their agents), regarding samples being submitted to ASL, is complete and accurate. ASL accepts all samples subject to the following conditions:

- 1) ASL is not responsible for verifying any client-provided information regarding any samples submitted to the laboratory.
- 2) ASL is not responsible for any consequences resulting from any inaccuracies, omissions, or misrepresentations contained in client-provided information regarding samples submitted to the laboratory.



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Page 1 Of 1

COC# Nº 43557 GLOBAL ID _____ E REPORT: ☐ PDF ☐ EDF ☐ EDD ASL JOB# 34666

Company: <u>Pacific Edge Engineering</u>		Report To: <u>PM</u>		ANALYSIS REQUESTED													
Address: <u>26691 Plaza #270</u>		Project Name: <u>Pilot Chemical Co.</u>		Address: <u>SAA</u>		<div style="display: flex; justify-content: space-around;"> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">8260B</div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">801S</div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">8021</div> </div>											
Mission Viejo, CA, 92691		Site Address: <u>11756 Burke St.</u>		Invoice To:													
Telephone: <u>949 470 1937</u>		Santa Fe Springs, CA		Address:													
Fax: <u>949 470 0943</u>		Project ID: <u>0105.0090.001.001</u>		P.O.#:													
Special Instruction: <u>MDL/POL reporting</u>		Project Manager: <u>Craig Stolz</u>															
E-mail: <u>CStolz@pacificedge-eng.com</u>																	

ITEM	LAB USE ONLY		SAMPLE DESCRIPTION				Container(s)		Matrix	Preservation													Remarks
	Lab ID	Sample ID	Date	Time	#	Type																	
	200856	Secondary Outlet	7/25/07	13:48	1	Tedlar	air	none			X	X	X										
	200857	Primary Outlet	↙	13:51	1	↙	↙	↙			X	X	X										
	200858	Primary Inlet	↙	13:55	1	↙	↙	↙			X	X	X										
	200859	V52	↙	14:08	1	↙	↙	↙			X												

Collected By: <u>Scott Miller</u>	Date <u>7/25/07</u> Time <u>as above</u>	Relinquished By:	Date _____ Time _____	TAT
Relinquished By: <u>Scott Miller</u>	Date <u>7/26/07</u> Time <u>16:00</u>	Received For Laboratory <u>Alex</u>	Date <u>7/26/07</u> Time <u>4:00</u>	<input checked="" type="checkbox"/> Normal
Received By:	Date _____ Time _____	Condition of Sample:		<input type="checkbox"/> Rush

CHAIN OF CUSTODY RECORD



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ANALYTICAL RESULTS

Ordered By

Pacific Edge Engineering, Inc.
26691 Plaza, Suite 270
Mission Viejo, CA 92691

Site

11756 Burke St.
Santa Fe Springs, CA

Telephone: (949)470-1937

Attn: Greg Dickinson

Page: 2

Project ID: 0105.0090.001.001

Project Name: Pilot Chemical Co.

ASL Job Number	Submitted	Client
34666	07/26/2007	PACIFIC

Method: 8260B, Volatile Organic Compounds

QC Batch No: 072707-1C

Our Lab I.D.			200856	200857			
Client Sample I.D.			Secondary Outlet	Primary Outlet			
Date Sampled			07/25/2007	07/25/2007			
Date Prepared			07/27/2007	07/27/2007			
Preparation Method							
Date Analyzed			07/27/2007	07/27/2007			
Matrix			Air	Air			
Units			uL/L	uL/L			
Dilution Factor			1	1			
Analytes	MDL	PQL	Results	Results			
Acetone	0.25	0.50	ND	ND			
Benzene	0.05	0.50	ND	ND			
Bromobenzene (Phenyl bromide)	0.05	0.50	ND	ND			
Bromochloromethane (Chlorobromomethane)	0.05	0.50	ND	ND			
Bromodichloromethane (Dichlorobromomethane)	0.05	0.50	ND	ND			
Bromoform (Tribromomethane)	0.06	0.50	ND	ND			
Bromomethane (Methyl bromide)	0.05	0.50	ND	ND			
2-Butanone (MEK, Methyl ethyl ketone)	0.5	0.5	ND	ND			
n-Butylbenzene	0.07	0.50	ND	ND			
sec-Butylbenzene	0.07	0.50	ND	ND			
tert-Butylbenzene	0.06	0.50	ND	ND			
Carbon disulfide	0.14	0.50	ND	ND			
Carbon tetrachloride (Tetrachloromethane)	0.05	0.50	ND	ND			
Chlorobenzene	0.06	0.50	ND	ND			
Chloroethane	0.12	0.50	ND	ND			
2-Chloroethyl vinyl ether	0.14	0.50	ND	ND			
Chloroform (Trichloromethane)	0.05	0.50	ND	ND			
Chloromethane (Methyl chloride)	0.08	0.50	ND	ND			
4-Chlorotoluene (p-Chlorotoluene)	0.05	0.50	ND	ND			
2-Chlorotoluene (o-Chlorotoluene)	0.07	0.50	ND	ND			
1,2-Dibromo-3-chloropropane (DBCP)	0.05	0.50	ND	ND			
Dibromochloromethane	0.05	0.50	ND	ND			
1,2-Dibromoethane (EDB, Ethylene dibromide)	0.05	0.50	ND	ND			
Dibromomethane	0.05	0.50	ND	ND			
1,2-Dichlorobenzene (o-Dichlorobenzene)	0.06	0.50	ND	ND			



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ANALYTICAL RESULTS

Page: 3

Project ID: 0105.0090.001.001
Project Name: Pilot Chemical Co.

ASL Job Number	Submitted	Client
34666	07/26/2007	PACIFIC

Method: 8260B, Volatile Organic Compounds

QC Batch No: 072707-1C

Our Lab I.D.		200856	200857		
Client Sample I.D.		Secondary Outlet	Primary Outlet		
Date Sampled		07/25/2007	07/25/2007		
Date Prepared		07/27/2007	07/27/2007		
Preparation Method					
Date Analyzed		07/27/2007	07/27/2007		
Matrix		Air	Air		
Units		uL/L	uL/L		
Dilution Factor		1	1		
Analytes	MDL	PQL	Results	Results	
1,3-Dichlorobenzene (m-Dichlorobenzene)	0.06	0.50	ND	ND	
1,4-Dichlorobenzene (p-Dichlorobenzene)	0.08	0.50	ND	ND	
Dichlorodifluoromethane	0.06	0.50	ND	ND	
1,1-Dichloroethane	0.10	0.50	ND	ND	
1,2-Dichloroethane	0.05	0.50	ND	ND	
1,1-Dichloroethene (1,1-Dichloroethylene)	0.10	0.50	ND	ND	
cis-1,2-Dichloroethene	0.08	0.50	ND	ND	
trans-1,2-Dichloroethene	0.07	0.50	ND	ND	
1,2-Dichloropropane	0.08	0.50	ND	ND	
1,3-Dichloropropane	0.05	0.50	ND	ND	
2,2-Dichloropropane	0.09	0.50	ND	ND	
1,1-Dichloropropene	0.06	0.50	ND	ND	
cis-1,3-Dichloropropene	0.05	0.50	ND	ND	
trans-1,3-Dichloropropene	0.05	0.50	ND	ND	
Ethylbenzene	0.06	0.50	0.19J	ND	
Hexachlorobutadiene (1,3-Hexachlorobutadiene)	0.06	0.50	ND	ND	
2-Hexanone	0.21	0.50	ND	ND	
Isopropylbenzene	0.07	0.50	ND	ND	
p-Isopropyltoluene (4-Isopropyltoluene)	0.10	0.50	ND	ND	
MTBE	0.08	0.50	ND	ND	
4-Methyl-2-pentanone (MIBK, Methyl isobutyl ketone)	0.5	0.5	ND	ND	
Methylene chloride (Dichloromethane, DCM)	0.5	0.5	ND	ND	
Naphthalene	0.09	0.50	ND	ND	
n-Propylbenzene	0.07	0.50	ND	ND	
Styrene	0.05	0.50	ND	ND	
1,1,1,2-Tetrachloroethane	0.05	0.50	ND	ND	
1,1,2,2-Tetrachloroethane	0.10	0.50	ND	ND	
Tetrachloroethene (Tetrachloroethylene)	0.09	0.50	ND	ND	
Toluene (Methyl benzene)	0.09	0.50	0.19J	ND	
1,2,3-Trichlorobenzene	0.05	0.50	ND	ND	
1,2,4-Trichlorobenzene	0.08	0.50	ND	ND	



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ANALYTICAL RESULTS

Page: 4

Project ID: 0105.0090.001.001
Project Name: Pilot Chemical Co.

ASL Job Number	Submitted	Client
34666	07/26/2007	PACIFIC

Method: 8260B, Volatile Organic Compounds

QC Batch No: 072707-1C

Our Lab I.D.			200856	200857			
Client Sample I.D.			Secondary Outlet	Primary Outlet			
Date Sampled			07/25/2007	07/25/2007			
Date Prepared			07/27/2007	07/27/2007			
Preparation Method							
Date Analyzed			07/27/2007	07/27/2007			
Matrix			Air	Air			
Units			uL/L	uL/L			
Dilution Factor			1	1			
Analytes	MDL	PQE	Results	Results			
1,1,1-Trichloroethane	0.06	0.50	ND	ND			
1,1,2-Trichloroethane	0.07	0.50	ND	ND			
Trichloroethene (TCE)	0.05	0.50	ND	ND			
Trichlorofluoromethane	0.07	0.50	ND	ND			
1,2,3-Trichloropropane	0.07	0.50	ND	ND			
1,2,4-Trimethylbenzene	0.10	0.50	ND	ND			
1,3,5-Trimethylbenzene	0.08	0.50	ND	ND			
Vinyl acetate	0.07	0.50	ND	ND			
Vinyl chloride (Chloroethene)	0.12	0.50	ND	0.54			
o-Xylene	0.08	0.50	0.12J	ND			
m- & p-Xylenes	0.20	0.50	1.0	0.24J			

Our Lab I.D.			200856	200857			
Surrogates	% Rec.Limit		% Rec.	% Rec.			
Surrogate Percent Recovery							
Bromofluorobenzene	70-120		104	97			
Dibromofluoromethane	70-120		106	112			
Toluene-d8	70-120		100	98			

QUALITY CONTROL REPORT

QC Batch No: 072707-1C

Analytes	MS % REC	MS DUP % REC	RPD %	MS/MSD % Limit	MS RPD % Limit					
Benzene	106	113	6.4	75-120	15					
Chlorobenzene	112	116	3.5	75-120	15					
1,1-Dichloroethene (1,1-Dichloroethylene)	103	105	1.9	75-120	15					
MTBE	108	114	5.4	75-120	15					
Toluene (Methyl benzene)	112	113	<1	75-120	15					
Trichloroethene (TCE)	116	117	<1	75-120	15					



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ANALYTICAL RESULTS

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Pacific Edge Engineering, Inc.
26691 Plaza, Suite 270
Mission Viejo, CA 92691

Site

11756 Burke St.
Santa Fe Springs, CA

Telephone: (949)470-1937

Attn: Greg Dickinson

Page: 5

Project ID: 0105.0090.001.001

Project Name: Pilot Chemical Co.

ASL Job Number	Submitted	Client
34666	07/26/2007	PACIFIC

Method: 8260B, Volatile Organic Compounds

QC Batch No: 072707-1C

Our Lab I.D.		200858	
Client Sample I.D.		Primary Inlet	
Date Sampled		07/25/2007	
Date Prepared		07/27/2007	
Preparation Method			
Date Analyzed		07/27/2007	
Matrix		Air	
Units		uL/L	
Dilution Factor		10	
Analytes	MDL	PQL	Results
Acetone	2.50	5	ND
Benzene	0.50	5	ND
Bromobenzene (Phenyl bromide)	0.50	5	ND
Bromochloromethane (Chlorobromomethane)	0.50	5	ND
Bromodichloromethane (Dichlorobromomethane)	0.50	5	ND
Bromoform (Tribromomethane)	0.60	5	ND
Bromomethane (Methyl bromide)	0.50	5	ND
2-Butanone (MEK, Methyl ethyl ketone)	5	5	ND
n-Butylbenzene	0.70	5	ND
sec-Butylbenzene	0.70	5	ND
tert-Butylbenzene	0.60	5	ND
Carbon disulfide	1.40	5	ND
Carbon tetrachloride (Tetrachloromethane)	0.50	5	ND
Chlorobenzene	0.60	5	ND
Chloroethane	1.20	5	ND
2-Chloroethyl vinyl ether	1.40	5	ND
Chloroform (Trichloromethane)	0.50	5	ND
Chloromethane (Methyl chloride)	0.80	5	ND
4-Chlorotoluene (p-Chlorotoluene)	0.50	5	ND
2-Chlorotoluene (o-Chlorotoluene)	0.70	5	ND
1,2-Dibromo-3-chloropropane (DBCP)	0.50	5	ND
Dibromochloromethane	0.50	5	ND
1,2-Dibromoethane (EDB, Ethylene dibromide)	0.50	5	ND
Dibromomethane	0.50	5	ND
1,2-Dichlorobenzene (o-Dichlorobenzene)	0.60	5	ND
1,3-Dichlorobenzene (m-Dichlorobenzene)	0.60	5	ND



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ANALYTICAL RESULTS

Page: 6

Project ID: 0105.0090.001.001
Project Name: Pilot Chemical Co.

ASL Job Number	Submitted	Client
34666	07/26/2007	PACIFIC

Method: 8260B, Volatile Organic Compounds

QC Batch No: 072707-1C

Our Lab I.D.		200858			
Client Sample I.D.		Primary Inlet			
Date Sampled		07/25/2007			
Date Prepared		07/27/2007			
Preparation Method					
Date Analyzed		07/27/2007			
Matrix		Air			
Units		uL/L			
Dilution Factor		10			
Analytes	MDL	PQL	Results		
1,4-Dichlorobenzene (p-Dichlorobenzene)	0.80	5	ND		
Dichlorodifluoromethane	0.60	5	ND		
1,1-Dichloroethane	1.00	5	ND		
1,2-Dichloroethane	0.50	5	4.5J		
1,1-Dichloroethene (1,1-Dichloroethylene)	1.00	5	ND		
cis-1,2-Dichloroethene	0.80	5	ND		
trans-1,2-Dichloroethene	0.70	5	ND		
1,2-Dichloropropane	0.80	5	ND		
1,3-Dichloropropane	0.50	5	ND		
2,2-Dichloropropane	0.90	5	ND		
1,1-Dichloropropene	0.60	5	ND		
cis-1,3-Dichloropropene	0.50	5	ND		
trans-1,3-Dichloropropene	0.50	5	ND		
Ethylbenzene	0.60	5	42.0		
Hexachlorobutadiene (1,3-Hexachlorobutadiene)	0.60	5	ND		
2-Hexanone	2.10	5	ND		
Isopropylbenzene	0.70	5	ND		
p-Isopropyltoluene (4-Isopropyltoluene)	1.00	5	ND		
MTBE	0.80	5	ND		
4-Methyl-2-pentanone (MIBK, Methyl isobutyl ketone)	5	5	ND		
Methylene chloride (Dichloromethane, DCM)	5	5	ND		
Naphthalene	0.90	5	ND		
n-Propylbenzene	0.70	5	ND		
Styrene	0.50	5	ND		
1,1,1,2-Tetrachloroethane	0.50	5	ND		
1,1,2,2-Tetrachloroethane	1.00	5	ND		
Tetrachloroethene (Tetrachloroethylene)	0.90	5	ND		
Toluene (Methyl benzene)	0.90	5	73.4		
1,2,3-Trichlorobenzene	0.50	5	ND		
1,2,4-Trichlorobenzene	0.80	5	ND		
1,1,1-Trichloroethane	0.60	5	ND		
1,1,2-Trichloroethane	0.70	5	ND		



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ANALYTICAL RESULTS

Page: 7
Project ID: 0105.0090.001.001
Project Name: Pilot Chemical Co.

ASL Job Number	Submitted	Client
34666	07/26/2007	PACIFIC

Method: 8260B, Volatile Organic Compounds

QC Batch No: 072707-1C

Our Lab I.D.		200858				
Client Sample I.D.		Primary Inlet				
Date Sampled		07/25/2007				
Date Prepared		07/27/2007				
Preparation Method						
Date Analyzed		07/27/2007				
Matrix		Air				
Units		uL/L				
Dilution Factor		10				
Analytes	MDL	PQL	Results			
Trichloroethene (TCE)	0.50	5	ND			
Trichlorofluoromethane	0.70	5	ND			
1,2,3-Trichloropropane	0.70	5	ND			
1,2,4-Trimethylbenzene	1.00	5	ND			
1,3,5-Trimethylbenzene	0.80	5	ND			
Vinyl acetate	0.70	5	ND			
Vinyl chloride (Chloroethene)	1.20	5	ND			
o-Xylene	0.80	5	16.5			
m- & p-Xylenes	2.00	5	170			

Our Lab I.D.		200858				
Surrogates	% Rec. Limit	% Rec.				
Surrogate Percent Recovery						
Bromofluorobenzene	70-120	112				
Dibromofluoromethane	70-120	99				
Toluene-d8	70-120	100				

QUALITY CONTROL REPORT

QC Batch No: 072707-1C

Analytes	MS % REC	MS DUP % REC	RPD %	MS/MSD % Limit	MS RPD % Limit				
Benzene	106	113	6.4	75-120	15				
Chlorobenzene	112	116	3.5	75-120	15				
1,1-Dichloroethene (1,1-Dichloroethylene)	103	105	1.9	75-120	15				
MTBE	108	114	5.4	75-120	15				
Toluene (Methyl benzene)	112	113	<1	75-120	15				
Trichloroethene (TCE)	116	117	<1	75-120	15				



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ANALYTICAL RESULTS

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Santa Fe Springs, CA

Telephone: (949)470-1937

Attn: Greg Dickinson

Page: 8

Project ID: 0105.0090.001.001

Project Name: Pilot Chemical Co.

ASL Job Number	Submitted	Client
34666	07/26/2007	PACIFIC

Method: 8260B, Volatile Organic Compounds

QC Batch No: 072707-1C

Our Lab I.D.		200859	
Client Sample I.D.		VS2	
Date Sampled		07/25/2007	
Date Prepared		07/27/2007	
Preparation Method			
Date Analyzed		07/27/2007	
Matrix		Air	
Units		uL/L	
Dilution Factor		50	
Analytes	MDL	PQL	Results
Acetone	12	25	ND
Benzene	2.50	25	ND
Bromobenzene (Phenyl bromide)	2.50	25	ND
Bromochloromethane (Chlorobromomethane)	2.50	25	ND
Bromodichloromethane (Dichlorobromomethane)	2.50	25	ND
Bromoform (Tribromomethane)	3.00	25	ND
Bromomethane (Methyl bromide)	2.50	25	ND
2-Butanone (MEK, Methyl ethyl ketone)	25	25	ND
n-Butylbenzene	3.50	25	ND
sec-Butylbenzene	3.50	25	ND
tert-Butylbenzene	3.00	25	ND
Carbon disulfide	7	25	ND
Carbon tetrachloride (Tetrachloromethane)	2.50	25	ND
Chlorobenzene	3.00	25	ND
Chloroethane	6	25	ND
2-Chloroethyl vinyl ether	7	25	ND
Chloroform (Trichloromethane)	2.50	25	ND
Chloromethane (Methyl chloride)	4.00	25	ND
4-Chlorotoluene (p-Chlorotoluene)	2.50	25	ND
2-Chlorotoluene (o-Chlorotoluene)	3.50	25	ND
1,2-Dibromo-3-chloropropane (DBCP)	2.50	25	ND
Dibromochloromethane	2.50	25	ND
1,2-Dibromoethane (EDB, Ethylene dibromide)	2.50	25	ND
Dibromomethane	2.50	25	ND
1,2-Dichlorobenzene (o-Dichlorobenzene)	3.00	25	ND
1,3-Dichlorobenzene (m-Dichlorobenzene)	3.00	25	ND



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Environmental Testing Services

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ANALYTICAL RESULTS

Page: 9

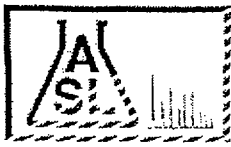
Project ID: 0105.0090.001.001
Project Name: Pilot Chemical Co.

ASL Job Number	Submitted	Client
34666	07/26/2007	PACIFIC

Method: 8260B, Volatile Organic Compounds

QC Batch No: 072707-1C

Our Lab I.D.		200859			
Client Sample I.D.		VS2			
Date Sampled		07/25/2007			
Date Prepared		07/27/2007			
Preparation Method					
Date Analyzed		07/27/2007			
Matrix		Air			
Units		uL/L			
Dilution Factor		50			
Analytes	MDL	PQL	Results		
1,4-Dichlorobenzene (p-Dichlorobenzene)	4.00	25	ND		
Dichlorodifluoromethane	3.00	25	ND		
1,1-Dichloroethane	5	25	ND		
1,2-Dichloroethane	2.50	25	50.4		
1,1-Dichloroethene (1,1-Dichloroethylene)	5	25	ND		
cis-1,2-Dichloroethene	4.00	25	ND		
trans-1,2-Dichloroethene	3.50	25	ND		
1,2-Dichloropropane	4.00	25	ND		
1,3-Dichloropropane	2.50	25	ND		
2,2-Dichloropropane	4.50	25	ND		
1,1-Dichloropropene	3.00	25	ND		
cis-1,3-Dichloropropene	2.50	25	ND		
trans-1,3-Dichloropropene	2.50	25	ND		
Ethylbenzene	3.00	25	302		
Hexachlorobutadiene (1,3-Hexachlorobutadiene)	3.00	25	ND		
2-Hexanone	10	25	ND		
Isopropylbenzene	3.50	25	24.25		
p-Isopropyltoluene (4-Isopropyltoluene)	5	25	ND		
MTBE	4.00	25	ND		
4-Methyl-2-pentanone (MIBK, Methyl isobutyl ketone)	25	25	ND		
Methylene chloride (Dichloromethane, DCM)	25	25	ND		
Naphthalene	4.50	25	ND		
n-Propylbenzene	3.50	25	ND		
Styrene	2.50	25	ND		
1,1,1,2-Tetrachloroethane	2.50	25	ND		
1,1,2,2-Tetrachloroethane	5	25	ND		
Tetrachloroethene (Tetrachloroethylene)	4.50	25	ND		
Toluene (Methyl benzene)	4.50	25	584		
1,2,3-Trichlorobenzene	2.50	25	ND		
1,2,4-Trichlorobenzene	4.00	25	ND		
1,1,1-Trichloroethane	3.00	25	ND		
1,1,2-Trichloroethane	3.50	25	ND		



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ANALYTICAL RESULTS

Page: 10

Project ID: 0105.0090.001.001
Project Name: Pilot Chemical Co.

ASL Job Number	Submitted	Client
34666	07/26/2007	PACIFIC

Method: 8260B, Volatile Organic Compounds

QC Batch No: 072707-1C

Our Lab I.D.		200859				
Client Sample I.D.		VS2				
Date Sampled		07/25/2007				
Date Prepared		07/27/2007				
Preparation Method						
Date Analyzed		07/27/2007				
Matrix		Air				
Units		uL/L				
Dilution Factor		50				
Analytes	MDL	PQL	Results			
Trichloroethene (TCE)	2.50	25	ND			
Trichlorofluoromethane	3.50	25	ND			
1,2,3-Trichloropropane	3.50	25	ND			
1,2,4-Trimethylbenzene	5	25	ND			
1,3,5-Trimethylbenzene	4.00	25	ND			
Vinyl acetate	3.50	25	ND			
Vinyl chloride (Chloroethene)	6	25	ND			
o-Xylene	4.00	25	101			
m- & p-Xylenes	10	25	1060			

Our Lab I.D.		200859				
Surrogates	% Rec.Limit	% Rec.				
Surrogate Percent Recovery						
Bromofluorobenzene	70-120	110				
Dibromofluoromethane	70-120	103				
Toluene-d8	70-120	104				

QUALITY CONTROL REPORT

QC Batch No: 072707-1C

Analytes	MS % REC	MS DUP % REC	RPD %	MS/MSD % Limit	MS RPD % Limit					
Benzene	106	113	6.4	75-120	15					
Chlorobenzene	112	116	3.5	75-120	15					
1,1-Dichloroethene (1,1-Dichloroethylene)	103	105	1.9	75-120	15					
MTBE	108	114	5.4	75-120	15					
Toluene (Methyl benzene)	112	113	<1	75-120	15					
Trichloroethene (TCE)	116	117	<1	75-120	15					



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ANALYTICAL RESULTS

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Mission Viejo, CA 92691-

Site

11756 Burke St.
Santa Fe Springs, CA

Telephone: (949)470-1937

Attn: Greg Dickinson

Page: 11

Project ID: 0105.0090.001.001

Project Name: Pilot Chemical Co.

ASL Job Number	Submitted	Client
34666	07/26/2007	PACIFIC

Method: 8260B, TPH GROs(Gasoline Range Organics)

QC Batch No: 072707-1C

Our Lab I.D.		200856	200857			
Client Sample I.D.		Secondary Outlet	Primary Outlet			
Date Sampled		07/25/2007	07/25/2007			
Date Prepared		07/27/2007	07/27/2007			
Preparation Method						
Date Analyzed		07/27/2007	07/27/2007			
Matrix		Air	Air			
Units		uL/L	uL/L			
Dilution Factor		1	1			
Analytes	MDL	PQL	Results	Results		
TPH GROs (C6 to C10)	5	10	ND	ND		

Our Lab I.D.		200856	200857			
Surrogates	% Rec. Limit	% Rec.	% Rec.			
Surrogate Percent Recovery						
Bromofluorobenzene	70-120	104	97			
Dibromofluoromethane	70-120	106	112			
Toluene-d8	70-120	100	98			

QUALITY CONTROL REPORT

QC Batch No: 072707-1C

Analytes	MS % REC	MS DUP % REC	RPD %	MS/MSD % Limit	MS RPD % Limit				
Benzene	106	113	6.4	75-120	15				
Chlorobenzene	112	116	3.5	75-120	15				
1,1-Dichloroethene (1,1-Dichloroethylene)	103	105	1.9	75-120	15				
Toluene (Methyl benzene)	112	113	<1	75-120	15				
Trichloroethene (TCE)	116	117	<1	75-120	15				



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Mission Viejo, CA 92691-

Site

11756 Burke St.
Santa Fe Springs, CA

Telephone: (949)470-1937

Attn: Greg Dickinson

Page: 12

Project ID: 0105.0090.001.001
Project Name: Pilot Chemical Co.

ASI Job Number	Submitted	Client
34666	07/26/2007	PACIFIC

Method: 8260B, TPH GROs(Gasoline Range Organics)

QC Batch No: 072707-1C

Our Lab I.D.			200858				
Client Sample I.D.			Primary Inlet				
Date Sampled			07/25/2007				
Date Prepared			07/27/2007				
Preparation Method							
Date Analyzed			07/27/2007				
Matrix			Air				
Units			uL/L				
Dilution Factor			10				
Analytes	MDL	PQL	Results				
TPH GROs (C6 to C10)	50	100	550				

Our Lab I.D.			200858				
Surrogates	% Rec.Limit		% Rec.				
Surrogate Percent Recovery							
Bromofluorobenzene	70-120		112				
Dibromofluoromethane	70-120		99				
Toluene-d8	70-120		100				

QUALITY CONTROL REPORT

QC Batch No: 072707-1C

Analytes	MS % REC	MS DUP % REC	RPD %	MS/MSD % Limit	MS RPD % Limit				
Benzene	106	113	6.4	75-120	15				
Chlorobenzene	112	116	3.5	75-120	15				
1,1-Dichloroethene (1,1-Dichloroethylene)	103	105	1.9	75-120	15				
Toluene (Methyl benzene)	112	113	<1	75-120	15				
Trichloroethene (TCE)	116	117	<1	75-120	15				



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Number of Pages 8

Date Received 12/12/2007

Date Reported 12/19/2007

Telephone (949) 470-1937
Attn Craig Stolz

Job Number	Ordered	Client
36256	12/12/2007	PACIFIC

Project ID: 0105.0090.001.001
Project Name: Pilot Chemical Co.
Site: 11756 Burke Street
Santa Fe Springs, CA

Enclosed are the results of analyses on 3 samples analyzed as specified on attached chain of custody.

Wendy Lu
Organics Supervisor

Rojert G. Araghi
Laboratory Director

American Scientific Laboratories, LLC (ASL) accepts sample materials from clients for analysis with the assumption that all of the information provided to ASL verbally or in writing by our clients (and/or their agents), regarding samples being submitted to ASL, is complete and accurate. ASL accepts all samples subject to the following conditions:

- 1) ASL is not responsible for verifying any client-provided information regarding any samples submitted to the laboratory.
- 2) ASL is not responsible for any consequences resulting from any inaccuracies, omissions, or misrepresentations contained in client-provided information regarding samples submitted to the laboratory.



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ANALYTICAL RESULTS

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26691 Plaza, Suite 270
Mission Viejo, CA 92691

Site

11756 Burke Street
Santa Fe Springs, CA

Telephone: (949)470-1937

Attn: Craig Stolz

Page: 2

Project ID: 0105.0090.001.001

Project Name: Pilot Chemical Co.

ASL Job Number	Submitted	Client
36256	12/12/2007	PACIFIC

Method: 8260B, Volatile Organic Compounds

QC Batch No: 121307-2B

Our Lab I.D.			210278	210279		
Client Sample I.D.			Secondary Outlet	Primary Outlet		
Date Sampled			12/11/2007	12/11/2007		
Date Prepared			12/13/2007	12/13/2007		
Preparation Method						
Date Analyzed			12/13/2007	12/13/2007		
Matrix			Air	Air		
Units			uL/L	uL/L		
Dilution Factor			1	1		
Analytes	MDL	PQL	Results	Results		
Acetone	0.25	0.50	ND	ND		
Benzene	0.05	0.50	ND	ND		
Bromobenzene (Phenyl bromide)	0.05	0.50	ND	ND		
Bromochloromethane (Chlorobromomethane)	0.05	0.50	ND	ND		
Bromodichloromethane (Dichlorobromomethane)	0.05	0.50	ND	ND		
Bromoform (Tribromomethane)	0.06	0.50	ND	ND		
Bromomethane (Methyl bromide)	0.05	0.50	ND	ND		
2-Butanone (MEK, Methyl ethyl ketone)	0.5	0.5	ND	ND		
n-Butylbenzene	0.07	0.50	ND	ND		
sec-Butylbenzene	0.07	0.50	ND	ND		
tert-Butylbenzene	0.06	0.50	ND	ND		
Carbon disulfide	0.14	0.50	ND	ND		
Carbon tetrachloride (Tetrachloromethane)	0.05	0.50	ND	ND		
Chlorobenzene	0.06	0.50	ND	ND		
Chloroethane	0.12	0.50	ND	ND		
2-Chloroethyl vinyl ether	0.14	0.50	ND	ND		
Chloroform (Trichloromethane)	0.05	0.50	ND	ND		
Chloromethane (Methyl chloride)	0.08	0.50	ND	ND		
4-Chlorotoluene (p-Chlorotoluene)	0.05	0.50	ND	ND		
2-Chlorotoluene (o-Chlorotoluene)	0.07	0.50	ND	ND		
1,2-Dibromo-3-chloropropane (DBCP)	0.05	0.50	ND	ND		
Dibromochloromethane	0.05	0.50	ND	ND		
1,2-Dibromoethane (EDB, Ethylene dibromide)	0.05	0.50	ND	ND		
Dibromomethane	0.05	0.50	ND	ND		
1,2-Dichlorobenzene (o-Dichlorobenzene)	0.06	0.50	ND	ND		



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ANALYTICAL RESULTS

Page: 3

Project ID: 0105.0090.001.001
Project Name: Pilot Chemical Co.

ASL Job Number	Submitted	Client
36256	12/12/2007	PACIFIC

Method: 8260B, Volatile Organic Compounds

QC Batch No: 121307-2B

Our Lab I.D.			210278	210279			
Client Sample I.D.			Secondary Outlet	Primary Outlet			
Date Sampled			12/11/2007	12/11/2007			
Date Prepared			12/13/2007	12/13/2007			
Preparation Method							
Date Analyzed			12/13/2007	12/13/2007			
Matrix			Air	Air			
Units			uL/L	uL/L			
Dilution Factor			1	1			
Analytes	MDL	PQL	Results	Results			
1,3-Dichlorobenzene (m-Dichlorobenzene)	0.06	0.50	ND	ND			
1,4-Dichlorobenzene (p-Dichlorobenzene)	0.08	0.50	ND	ND			
Dichlorodifluoromethane	0.06	0.50	ND	ND			
1,1-Dichloroethane	0.10	0.50	ND	ND			
1,2-Dichloroethane	0.05	0.50	ND	ND			
1,1-Dichloroethene (1,1-Dichloroethylene)	0.10	0.50	ND	ND			
cis-1,2-Dichloroethene	0.08	0.50	ND	ND			
trans-1,2-Dichloroethene	0.07	0.50	ND	ND			
1,2-Dichloropropane	0.08	0.50	ND	ND			
1,3-Dichloropropane	0.05	0.50	ND	ND			
2,2-Dichloropropane	0.09	0.50	ND	ND			
1,1-Dichloropropene	0.06	0.50	ND	ND			
cis-1,3-Dichloropropene	0.05	0.50	ND	ND			
trans-1,3-Dichloropropene	0.05	0.50	ND	ND			
Ethylbenzene	0.06	0.50	ND	ND			
Hexachlorobutadiene (1,3-Hexachlorobutadiene)	0.06	0.50	ND	ND			
2-Hexanone	0.21	0.50	ND	ND			
Isopropylbenzene	0.07	0.50	ND	ND			
p-Isopropyltoluene (4-Isopropyltoluene)	0.10	0.50	ND	ND			
MTBE	0.08	0.50	ND	ND			
4-Methyl-2-pentanone (MIBK, Methyl isobutyl ketone)	0.5	0.5	ND	ND			
Methylene chloride (Dichloromethane, DCM)	0.5	0.5	ND	ND			
Naphthalene	0.09	0.50	ND	ND			
n-Propylbenzene	0.07	0.50	ND	ND			
Styrene	0.05	0.50	ND	ND			
1,1,1,2-Tetrachloroethane	0.05	0.50	ND	ND			
1,1,2,2-Tetrachloroethane	0.10	0.50	ND	ND			
Tetrachloroethene (Tetrachloroethylene)	0.09	0.50	ND	ND			
Toluene (Methyl benzene)	0.09	0.50	ND	ND			
1,2,3-Trichlorobenzene	0.05	0.50	ND	ND			
1,2,4-Trichlorobenzene	0.08	0.50	ND	ND			



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ANALYTICAL RESULTS

Page: 4

Project ID: 0105.0090.001.001
Project Name: Pilot Chemical Co.

ASL Job Number	Submitted	Client
36256	12/12/2007	PACIFIC

Method: 8260B, Volatile Organic Compounds

QC Batch No: 121307-2B

Our Lab I.D.			210278	210279			
Client Sample I.D.			Secondary Outlet	Primary Outlet			
Date Sampled			12/11/2007	12/11/2007			
Date Prepared			12/13/2007	12/13/2007			
Preparation Method							
Date Analyzed			12/13/2007	12/13/2007			
Matrix			Air	Air			
Units			uL/L	uL/L			
Dilution Factor			1	1			
Analytes	MDL	PQL	Results	Results			
1,1,1-Trichloroethane	0.06	0.50	ND	ND			
1,1,2-Trichloroethane	0.07	0.50	ND	ND			
Trichloroethene (TCE)	0.05	0.50	ND	ND			
Trichlorofluoromethane	0.07	0.50	ND	ND			
1,2,3-Trichloropropane	0.07	0.50	ND	ND			
1,2,4-Trimethylbenzene	0.10	0.50	ND	ND			
1,3,5-Trimethylbenzene	0.08	0.50	ND	ND			
Vinyl acetate	0.07	0.50	ND	ND			
Vinyl chloride (Chloroethene)	0.12	0.50	ND	ND			
o-Xylene	0.08	0.50	ND	ND			
m- & p-Xylenes	0.20	0.50	ND	ND			

Our Lab I.D.			210278	210279			
Surrogates	% Rec.Limit		% Rec.	% Rec.			
Surrogate Percent Recovery							
Bromofluorobenzene	70-120		118	119			
Dibromofluoromethane	70-120		104	101			
Toluene-d8	70-120		86	84			

QUALITY CONTROL REPORT

QC Batch No: 121307-2B

Analytes	MS % REC	MS DUP % REC	RPD %	MS/MSD % Limit	MS RPD % Limit					
Benzene	102	115	12.0	75-120	15					
Chlorobenzene	97	104	7.0	75-120	15					
1,1-Dichloroethene (1,1-Dichloroethylene)	92	101	9.3	75-120	15					
MTBE	98	108	9.7	75-120	15					
Toluene (Methyl benzene)	108	118	8.8	75-120	15					
Trichloroethene (TCE)	92	102	10.3	75-120	15					



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ANALYTICAL RESULTS

Ordered By

Pacific Edge Engineering, Inc.
26691 Plaza, Suite 270
Mission Viejo, CA 92691-

Site

11756 Burke Street
Santa Fe Springs, CA

Telephone: (949)470-1937

Attn: Craig Stolz

Page: 5

Project ID: 0105.0090.001.001

Project Name: Pilot Chemical Co.

ASL Job Number	Submitted	Client
36256	12/12/2007	PACIFIC

Method: 8260B, Volatile Organic Compounds

QC Batch No: 121307-2B

Our Lab I.D.		210280			
Client Sample I.D.		VS2			
Date Sampled		12/11/2007			
Date Prepared		12/13/2007			
Preparation Method					
Date Analyzed		12/13/2007			
Matrix		Air			
Units		uL/L			
Dilution Factor		50			
Analytes	MDL	PQL	Results		
Acetone	12	25	ND		
Benzene	2.50	25	ND		
Bromobenzene (Phenyl bromide)	2.50	25	ND		
Bromochloromethane (Chlorobromomethane)	2.50	25	ND		
Bromodichloromethane (Dichlorobromomethane)	2.50	25	ND		
Bromoform (Tribromomethane)	3.00	25	ND		
Bromomethane (Methyl bromide)	2.50	25	ND		
2-Butanone (MEK, Methyl ethyl ketone)	25	25	ND		
n-Butylbenzene	3.50	25	ND		
sec-Butylbenzene	3.50	25	ND		
tert-Butylbenzene	3.00	25	ND		
Carbon disulfide	7	25	ND		
Carbon tetrachloride (Tetrachloromethane)	2.50	25	ND		
Chlorobenzene	3.00	25	ND		
Chloroethane	6	25	ND		
2-Chloroethyl vinyl ether	7	25	ND		
Chloroform (Trichloromethane)	2.50	25	ND		
Chloromethane (Methyl chloride)	4.00	25	ND		
4-Chlorotoluene (p-Chlorotoluene)	2.50	25	ND		
2-Chlorotoluene (o-Chlorotoluene)	3.50	25	ND		
1,2-Dibromo-3-chloropropane (DBCP)	2.50	25	ND		
Dibromochloromethane	2.50	25	ND		
1,2-Dibromoethane (EDB, Ethylene dibromide)	2.50	25	ND		
Dibromomethane	2.50	25	ND		
1,2-Dichlorobenzene (o-Dichlorobenzene)	3.00	25	ND		
1,3-Dichlorobenzene (m-Dichlorobenzene)	3.00	25	ND		



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ANALYTICAL RESULTS

Page: 6

Project ID: 0105.0090.001.001

Project Name: Pilot Chemical Co.

ASL Job Number	Submitted	Client
36256	12/12/2007	PACIFIC

Method: 8260B, Volatile Organic Compounds

QC Batch No: 121307-2B

Our Lab I.D.	210280				
Client Sample I.D.	VS2				
Date Sampled	12/11/2007				
Date Prepared	12/13/2007				
Preparation Method					
Date Analyzed	12/13/2007				
Matrix	Air				
Units	uL/L				
Dilution Factor	50				
Analytes	MDL	PQL	Results		
1,4-Dichlorobenzene (p-Dichlorobenzene)	4.00	25	ND		
Dichlorodifluoromethane	3.00	25	ND		
1,1-Dichloroethane	5	25	ND		
1,2-Dichloroethane	2.50	25	66.3		
1,1-Dichloroethene (1,1-Dichloroethylene)	5	25	ND		
cis-1,2-Dichloroethene	4.00	25	ND		
trans-1,2-Dichloroethene	3.50	25	ND		
1,2-Dichloropropane	4.00	25	ND		
1,3-Dichloropropane	2.50	25	ND		
2,2-Dichloropropane	4.50	25	ND		
1,1-Dichloropropene	3.00	25	ND		
cis-1,3-Dichloropropene	2.50	25	ND		
trans-1,3-Dichloropropene	2.50	25	ND		
Ethylbenzene	3.00	25	314		
Hexachlorobutadiene (1,3-Hexachlorobutadiene)	3.00	25	ND		
2-Hexanone	10	25	ND		
Isopropylbenzene	3.50	25	31.8		
p-Isopropyltoluene (4-Isopropyltoluene)	5	25	ND		
MTBE	4.00	25	ND		
4-Methyl-2-pentanone (MIBK, Methyl isobutyl ketone)	25	25	ND		
Methylene chloride (Dichloromethane, DCM)	25	25	ND		
Naphthalene	4.50	25	ND		
n-Propylbenzene	3.50	25	ND		
Styrene	2.50	25	ND		
1,1,1,2-Tetrachloroethane	2.50	25	ND		
1,1,2,2-Tetrachloroethane	5	25	ND		
Tetrachloroethene (Tetrachloroethylene)	4.50	25	ND		
Toluene (Methyl benzene)	4.50	25	639		
1,2,3-Trichlorobenzene	2.50	25	ND		
1,2,4-Trichlorobenzene	4.00	25	ND		
1,1,1-Trichloroethane	3.00	25	ND		
1,1,2-Trichloroethane	3.50	25	ND		



AMERICAN SCIENTIFIC LABORATORIES, LLC
Environmental Testing Services

2520 N. San Fernando Rd., Los Angeles, CA 90065 Tel: (323) 223-9700 Fax: (323) 223-9500

ANALYTICAL RESULTS

Page: 7

Project ID: 0105.0090.001.001
Project Name: Pilot Chemical Co.

ASL Job Number	Submitted	Client
36256	12/12/2007	PACIFIC

Method: 8260B, Volatile Organic Compounds

QC Batch No: 121307-2B

Our Lab I.D.		210280				
Client Sample I.D.		VS2				
Date Sampled		12/11/2007				
Date Prepared		12/13/2007				
Preparation Method						
Date Analyzed		12/13/2007				
Matrix		Air				
Units		uL/L				
Dilution Factor		50				
Analytes	MDL	PQL	Results			
Trichloroethene (TCE)	2.50	25	ND			
Trichlorofluoromethane	3.50	25	ND			
1,2,3-Trichloropropane	3.50	25	ND			
1,2,4-Trimethylbenzene	5	25	ND			
1,3,5-Trimethylbenzene	4.00	25	ND			
Vinyl acetate	3.50	25	ND			
Vinyl chloride (Chloroethene)	6	25	ND			
o-Xylene	4.00	25	146			
m- & p-Xylenes	10	25	1590			

Our Lab I.D.		210280				
Surrogates	% Rec.Limit	% Rec.				
Surrogate Percent Recovery						
Bromofluorobenzene	70-120	117				
Dibromofluoromethane	70-120	88				
Toluene-d8	70-120	88				

QUALITY CONTROL REPORT

QC Batch No: 121307-2B

Analytes	MS % REC	MS DUP % REC	RPD %	MS/MSD % Limit	MS RPD % Limit					
Benzene	102	115	12.0	75-120	15					
Chlorobenzene	97	104	7.0	75-120	15					
1,1-Dichloroethene (1,1-Dichloroethylene)	92	101	9.3	75-120	15					
MTBE	98	108	9.7	75-120	15					
Toluene (Methyl benzene)	108	118	8.8	75-120	15					
Trichloroethene (TCE)	92	102	10.3	75-120	15					



AMERICAN SCIENTIFIC LABORATORIES, LLC

Environmental Testing Services

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ANALYTICAL RESULTS

Ordered By

Pacific Edge Engineering, Inc.
26691 Plaza, Suite 270
Mission Viejo, CA 92691-

Site

11756 Burke Street
Santa Fe Springs, CA

Telephone: (949)470-1937

Attn: Craig Stolz

Page: 8

Project ID: 0105.0090.001.001

Project Name: Pilot Chemical Co.

ASL Job Number	Submitted	Client
36256	12/12/2007	PACIFIC

Method: 8260B, TPH GROs(Gasoline Range Organics)

QC Batch No: 121307-2B

Our Lab I.D.		210278	210279			
Client Sample I.D.		Secondary Outlet	Primary Outlet			
Date Sampled		12/11/2007	12/11/2007			
Date Prepared		12/13/2007	12/13/2007			
Preparation Method						
Date Analyzed		12/13/2007	12/13/2007			
Matrix		Air	Air			
Units		uL/L	uL/L			
Dilution Factor		1	1			
Analytes	MDL	PQL	Results	Results		
TPH GROs (C6 to C10)	5	10	ND	ND		

Our Lab I.D.		210278	210279			
Surrogates	% Rec.Limit	% Rec.	% Rec.			
Surrogate Percent Recovery						
Bromofluorobenzene	70-120	118	119			
Dibromofluoromethane	70-120	104	101			
Toluene-d8	70-120	86	84			

QUALITY CONTROL REPORT

QC Batch No: 121307-2B

Analytes	MS % REC	MS DUP % REC	RPD %	MS/MSD % Limit	MS RPD % Limit					
Benzene	102	115	12.0	75-120	15					
Chlorobenzene	97	104	7.0	75-120	15					
1,1-Dichloroethene (1,1-Dichloroethylene)	92	101	9.3	75-120	15					
Toluene (Methyl benzene)	108	118	8.8	75-120	15					
Trichloroethene (TCE)	92	102	10.3	75-120	15					

Appendix E

SVE Operational Field Logs



PACIFIC EDGE ENGINEERING

(949) 470-1937; (949) 470-0943 (FAX)

report_text1.doc

PACIFIC GE
SVE System Monitoring Log

SITE INFORMATION

Client/Site:	Pilot Chemical Company		Unit:	250 Scfm Carbon
Address:	11756 Burke Street, Santa Fe Springs		Permit No.:	F79822
Project No:	0105.0090.001.001		Date:	7/10/07
Technician:	Initials:	ETZ / BSM		
Arrival Status:	<input checked="" type="checkbox"/> ON / <input type="checkbox"/> OFF	Alarms:		

CARBON FILTER INFORMATION

PID Reading	Primary Canister Inlet (ppm): 392.4	Secondary Canister Inlet (ppm): 0.0
	Primary Canister Outlet (ppm): 0.0	Secondary Canister Outlet (ppm): 0.0
Dilution Valve	Manual (% open):	
Operating Hours	Total Hours: 9804.9	Cummulative Hours:
Knockout Pot	Total Gallons: Cummulative Gallons:	Drained: Y <input checked="" type="checkbox"/> N
Extraction System	Influent Flow Rate (cfm): ~230	Lubricated: Y <input checked="" type="checkbox"/> N
Extraction System	Influent Vacuum: 14.4" → 17.5"	Temp @ carbon Influent 123
Extraction System	Vacuum @ knockout pot 2.5"	Temp @ heat exchanger influent 135
Extraction System	Pressure @ outlet of heat exchanger 0.4	Pressure @ inlet to heat exchanger 0

PROCESS DATA

WELL NO.	Well % Open	Flow Rate (cfm)	Vacuum at Well Head	PID Reading (ppm)	Comments
EW3					1st Reading: 8:00 A.M. Temp. 80°F
EW4					Air valve was closed 1 turn
VS1	50	1.2	4.1"		2nd Reading: 2:00 P.M.
VS2	100	2.5	0.5"		Pressure 16.9" Temp: 92°F
VD1					1' inlet: 326.4
VD2					1' outlet / 2' inlet: 8.1
VD3					2' outlet: 6.6
VD4					
VD5					
VD6					
VD7					
Monitoring Device:				Calibration (type/date):	

Additional Notes

Collect bagged sample from VS1, VS2, Primary Inlet, Primary Outlet, and Secondary Outlet.

SITE INFORMATION

Client/Site:	Pilot Chemical Company		Unit:	250 Scfm Carbon
Address:	11756 Burke Street, Santa Fe Springs		Permit No.:	F79822
Project No:	0105.0090.001.001		Date:	7/11/07
Technician:	Initials:	ETZ		
Arrival Status:	ON / OFF	Alarms:		

CARBON FILTER INFORMATION

PID Reading	Primary Canister Inlet (ppm):	281.0	Secondary Canister Inlet (ppm):	0.4
	Primary Canister Outlet (ppm):	0.4	Secondary Canister Outlet (ppm):	0.0
Dilution Valve	Manual (% open):			
Operating Hours	Total Hours:		Cummulative Hours:	
Knockout Pot	Total Gallons:	Cummulative Gallons:	Drained:	Y / N
Extraction System	Influent Flow Rate (cfm):		Lubricated:	Y / N
Extraction System	Influent Vacuum:	15.5"	Temp @ carbon Influent	
Extraction System	Vacuum @ knockoff pot		Temp @ heat exchanger influent	
Extraction System	Pressure @ outlet of heat exchanger		Pressure @ inlet to heat exchanger	

PROCESS DATA

WELL NO.	Well % Open	Flow Rate (cfm)	Vacuum at Well Head	PID Reading (ppm)	Comments
EW					Temp. 80°F (8:00 A.M.)
EW4					
VS1					
VS2					
VD1					
VD2					
VD3					
VD4					
VD5					
VD6					
VD7					

Monitoring Device:	Calibration (type/date):
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Additional Notes

PACIFIC GE
SVE System Monitoring Log

SITE INFORMATION

Client/Site:	Pilot Chemical Company		Unit:	250 Scfm Carbon
Address:	11756 Burke Street, Santa Fe Springs		Permit No.:	F79822
Project No:	0105.0090.001.001		Date:	7/12/07
Technician:	Initials: F T Z			
Alarm Status:	ON / OFF	Alarms:		

CARBON FILTER INFORMATION

PID Reading	Primary Canister Inlet (ppm):	287.8	Secondary Canister Inlet (ppm):	0.0
	Primary Canister Outlet (ppm):	0.0	Secondary Canister Outlet (ppm):	0.0
Dilution Valve	Manual (% open):			
Operating Hours	Total Hours:		Cummulative Hours:	
Knockout Pot	Total Gallons:	Cummulative Gallons:	Drained:	Y / N
Extraction System	Influent Flow Rate (cfm):		Lubricated:	Y / N
Extraction System	Influent Vacuum:	17.0"	Temp @ carbon Influent	
Extraction System	Vacuum @ knockoff pot		Temp @ heat exchanger influent	
Extraction System	Pressure @ outlet of heat exchanger		Pressure @ inlet to heat exchanger	

PROCESS DATA

WELL NO	Well % Open	Flow Rate (cfm)	Vacuum at Well Head	PID Reading (ppm)	Comments
EW3					Temp. 82°F (8:00 A.M.)
EW4					
VS1					
VS2					
VD1					
VD2					
VD3					
VD4					
VD5					
VD6					
VD7					
Monitoring Device					Calibration (type/date):

Additional Notes

PACIFIC GE
SVE System Monitoring Log

SITE INFORMATION

Client/Site:	<i>Pilot Chemical Company</i>		Unit:	<i>250 Scfm Carbon</i>
Address:	<i>11756 Burke Street, Santa Fe Springs</i>		Permit No.:	<i>F79822</i>
Project No:	<i>0105.0090.001.001</i>		Date:	<i>5-13-07</i>
Technician:	Initials: <i>DB</i>			
Arrival Status:	<i>ON</i> OFF	Alarms:		

CARBON FILTER INFORMATION

PID Reading:	Primary Canister Inlet (ppm): <i>320.1</i>	Secondary Canister Inlet (ppm): <i>0</i>
	Primary Canister Outlet (ppm): <i>0</i>	Secondary Canister Outlet (ppm): <i>0</i>
Dilution Valve:	Manual (% open):	
Operating Hours:	Total Hours:	Cummulative Hours:
Knockout Pot:	Total Gallons:	Cummulative Gallons:
		Drained: Y / N
Extraction System:	Influent Flow Rate (cfm):	Lubricated: Y / N
Extraction System:	Influent Vacuum: <i>18.4</i>	Temp @ carbon Influent
Extraction System:	Vacuum @ knockoff pot	Temp @ heat exchanger influent
Extraction System:	Pressure @ outlet of heat exchanger	Pressure @ inlet to heat exchanger

PROCESS DATA

WELL NO	Well % Open	Flow Rate (cfm)	Vacuum at Well Head	PID Reading (ppm)	Comments
EW3					
EW4					
VS1					
VS2					
VD1					
VD2					
VD3					
VD4					
VD5					
VD6					
VD7					
Monitoring Device:					Calibration (type/date):

Additional Notes

temp - 90° Time 9:45 am

PACIFIC GE
SVE System Monitoring Log

SITE INFORMATION

Client/Site:	Pilot Chemical Company		Unit:	250 Scfm Carbon
Address:	11756 Burke Street, Santa Fe Springs		Permit No.:	F79822
Project No:	0105.0090.001.001		Date:	7/16/07
Technician:	Initials: <u>FTZ</u>			
Arrival Status:	<input checked="" type="checkbox"/> ON / OFF	Alarms:		

CARBON FILTER INFORMATION

PID Reading	Primary Canister Inlet (ppm): <u>288.1</u>	Secondary Canister Inlet (ppm): <u>1.8</u>
	Primary Canister Outlet (ppm): <u>1.8</u>	Secondary Canister Outlet (ppm): <u>1.6</u>
Dilution Valve	Manual (% open):	
Operating Hours	Total Hours:	Cummulative Hours:
Knockout Pot	Total Gallons:	Cummulative Gallons:
Extraction System	Influent Flow Rate (cfm):	Drained: Y / N
Extraction System	Influent Vacuum: <u>15.0</u>	Lubricated: Y / N
Extraction System	Vacuum @ knockoff pot	Temp @ carbon Influent
Extraction System	Pressure @ outlet of heat exchanger	Temp @ heat exchanger influent
		Pressure @ inlet to heat exchanger

PROCESS DATA

WELL NO	Well % Open	Flow Rate (cfm)	Vacuum at Well Head	PID Reading (ppm)	Comments
EW3					Temp. 82°F (8:00 A.M.)
EW4					Air valve was closed 1 full turn to bring up extractions.
VS1					
VS2					2nd Reading: 2:30 P.M.
VD1					Temp: 100°F, Pressure: 18.2
VD2					1' inlet: 470.2
VD3					1' out let / 2' inlet: 6.1
VD4					2' out let: 4.9
VD5					
VD6					
VD7					
Monitoring Device:				Calibration (type/date):	

Additional Notes

PACIFIC GE
SVE System Monitoring Log

SITE INFORMATION

Client/Site:	Pilot Chemical Company		Unit:	250 Scfm Carbon
Address:	11756 Burke Street, Santa Fe Springs		Permit No.:	F79822
Project No:	0105.0090.001.001		Date:	7/17/07
Technician:	Initials:	ETZ		
Arrival Status:	ON / OFF	Alarms:		

CARBON FILTER INFORMATION

PID Reading:	Primary Canister Inlet (ppm):	376.8	Secondary Canister Inlet (ppm):	0.0
	Primary Canister Outlet (ppm):	0.0	Secondary Canister Outlet (ppm):	0.0
Dilution Valve:	Manual (% open):			
Operating Hours:	Total Hours:		Cummulative Hours:	
Knockout Pot:	Total Gallons:		Cummulative Gallons:	
Extraction System:	Influent Flow Rate (cfm):		Drained:	Y / N
Extraction System:	Influent Vacuum:	15.5	Lubricated:	Y / N
Extraction System:	Vacuum @ knockoff pot		Temp @ carbon Influent	
Extraction System:	Pressure @ outlet of heat exchanger		Temp @ heat exchanger influent	
Extraction System:			Pressure @ inlet to heat exchanger	

PROCESS DATA

WELL NO	Well % Open	Flow Rate (cfm)	Vacuum at Well Head	PID Reading (ppm)	Comments:
EW3					Temp: 80°F (8:00 A.M.)
EW4					Air valve was closed 1 full turn.
VS1					2nd Reading: (2:00 P.M.)
VS2					Temp: 105°F
VD1					Pressure: 19.0"
VD2					1' inlet: 626.1
VD3					1' outlet / 2' inlet: 2.7
VD4					2' outlet: 1.9
VD5					
VD6					
VD7					
Monitoring Device:					Calibration (type/date):

Additional Notes

PACIFIC GE
SVE System Monitoring Log

SITE INFORMATION

Client/Site: Pilot Chemical Company
Address: 11756 Burke Street, Santa Fe Springs
Project No: 0105.0090.001.001
Unit: 250 Scfm Carbon
Permit No.: F79822
Technician: Initials: P12
Date: 7/18/07
Arrival Status: ON / OFF Alarms:

CARBON FILTER INFORMATION

PID Reading: Primary Canister Inlet (ppm): 526.0 738 Secondary Canister Inlet (ppm): 0.0 4.3
Primary Canister Outlet (ppm): 0.0 4.3 Secondary Canister Outlet (ppm): 0.0 8.8
Dilution Valve: Manual (% open):
Operating Hours: Total Hours: 9981.2 Cumulative Hours:
Knockout Pot: Total Gallons: Cumulative Gallons: Drained: Y / ☒
Extraction System: Influent Flow Rate (cfm): ~230 Lubricated: Y / ☒
Extraction System: Influent Vacuum: 15.0" 18" Temp @ carbon Influent 121
Extraction System: Vacuum @ knockoff pot 8.6" Temp @ heat exchanger influent 139
Extraction System: Pressure @ outlet of heat exchanger 6.4 Pressure @ inlet to heat exchanger 0

PROCESS DATA

WELL NO.	Well % Open	Flow Rate (cfm)	Vacuum at Well Head	PID Reading (ppm)	Comments
EW3					Temp. 77°F (7:00 A.M.)
EW4					Air Valve was closed 1/2 turn.
VS1	50	2.0	21"		2nd Reading: 2:00 P.M.
VS2	100	3.8	1"		Temp: 100°F Pressure 18.25"
VD1					1' inlet: 715.5
VD2					1' outlet / 2' inlet: 3.8
VD3					2' outlet: 2.8
VD4					
VD5					
VD6					
VD7					
Monitoring Device	PID			Calibration (type/date): Hexane	

Additional Notes

PACIFIC GE
SVE System Monitoring Log

SITE INFORMATION

Client/Site:	Pilot Chemical Company		Unit:	250 Scfm Carbon
Address:	11756 Burke Street, Santa Fe Springs		Permit No.:	F79822
Project No:	0105.0090.001.001		Date:	7/19/07
Technician:	Initials: <u>ETZ</u>			
Arrival Status:	<input checked="" type="checkbox"/> ON / <input type="checkbox"/> OFF	Alarms:		

CARBON FILTER INFORMATION

PID Reading:	Primary Canister Inlet (ppm):	686.8	Secondary Canister Inlet (ppm):	0.0
	Primary Canister Outlet (ppm):	0.0	Secondary Canister Outlet (ppm):	0.0
Dilution Valve:	Manual (% open):			
Operating Hours:	Total Hours:		Cummulative Hours:	
Knockout Pot:	Total Gallons:	Cummulative Gallons:	Drained:	Y / N
Extraction System:	Influent Flow Rate (cfm):		Lubricated:	Y / N
Extraction System:	Influent Vacuum:	15.5"	Temp @ carbon Influent	
Extraction System:	Vacuum @ knockoff pot		Temp @ heat exchanger influent	
Extraction System:	Pressure @ outlet of heat exchanger		Pressure @ inlet to heat exchanger	

PROCESS DATA

WELL NO.	Well % Open	Flow Rate (cfm)	Vacuum at Well Head	PID Reading (ppm)	Comments
EW3					Temp. 82°F (7:00 A.M.)
EW4					
VS1					
VS2					
VD1					
VD2					
VD3					
VD4					
VD5					
VD6					
VD7					

Monitoring Device:	Calibration (type/date):
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Additional Notes

PACIFIC GE
SVE System Monitoring Log

SITE INFORMATION

Client/Site:	Pilot Chemical Company		Unit:	250 Scfm Carbon
Address:	11756 Burke Street, Santa Fe Springs		Permit No.:	F79822
Project No:	0105.0090.001.001		Date:	7/23/07
Technician:	Initials:	B.M.		
Arrival Status:	<input checked="" type="radio"/> ON / <input type="radio"/> OFF	Alarms:		

CARBON FILTER INFORMATION

PID Reading	Primary Canister Inlet (ppm):	868	Secondary Canister Inlet (ppm):	0.6
	Primary Canister Outlet (ppm):	0.6	Secondary Canister Outlet (ppm):	0.1
Dilution Valve	Manual (% open):			
Operating Hours	Total Hours:	10031.6	Cummulative Hours:	
Knockout Pot	Total Gallons:		Cummulative Gallons:	
Extraction System	Influent Flow Rate (cfm):	240	Lubricated:	Y / <input checked="" type="radio"/> N
Extraction System	Influent Vacuum:	17.5"	Temp @ carbon Influent	120
Extraction System	Vacuum @ knockoff pot	4.9"	Temp @ heat exchanger influent	134
Extraction System	Pressure @ outlet of heat exchanger	1/4	Pressure @ inlet to heat exchanger	

PROCESS DATA

WELL NO	Well % Open	Flow Rate (cfm)	Vacuum at Well Head	PID Reading (ppm)	Comments
EW3					
EW4					
VS1	50				
VS2	100				
VD1					
VD2					
VD3					
VD4					
VD5					
VD6					
VD7					

Monitoring Device:	Calibration (type/date):
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Additional Notes

PACIFIC GE
SVE System Monitoring Log

SITE INFORMATION

Client/Site:	Pilot Chemical Company		Unit:	250 Scfm Carbon
Address:	11756 Burke Street, Santa Fe Springs		Permit No.:	F79822
Project No:	0105.0090.001.001		Date:	7/24/07
Technician:	Initials:	<i>SM</i>		
Arrival Status:	ON / OFF	Alarms:	<i>none</i>	

CARBON FILTER INFORMATION

PID Reading	Primary Canister Inlet (ppm):	<i>774</i>	Secondary Canister Inlet (ppm):	<i>1.1</i>
	Primary Canister Outlet (ppm):	<i>1.1</i>	Secondary Canister Outlet (ppm):	<i>0.4</i>
Dilution Valve	Manual (% open):			
Operating Hours	Total Hours:	<i>10053.5</i>	Cummulative Hours:	
Knockout Pot	Total Gallons:		Cummulative Gallons:	
Extraction System	Influent Flow Rate (cfm):	<i>~230</i>	Drained:	Y / <i>(N)</i>
Extraction System	Influent Vacuum:	<i>17.5"</i>	Lubricated:	Y / <i>(N)</i>
Extraction System	Vacuum @ knockoff pot	<i>8.8"</i>	Temp @ carbon Influent	<i>126</i>
Extraction System	Pressure @ outlet of heat exchanger	<i>n/a</i>	Temp @ heat exchanger influent	<i>142</i>
			Pressure @ inlet to heat exchanger	<i>0</i>

PROCESS DATA

WELL NO	Well % Open	Flow Rate (cfm)	Vacuum at Well Head	PID Reading (ppm)	Comments
<i>EW3</i>					
<i>EW4</i>					
<i>VS1</i>	<i>50</i>	<i>2.5</i>			
<i>VS2</i>	<i>100</i>	<i>5.1</i>			
<i>VD1</i>					
<i>VD2</i>					
<i>VD3</i>					
<i>VD4</i>					
<i>VD5</i>					
<i>VD6</i>					
<i>VD7</i>					

Monitoring Device:	<i>FID</i>	Calibration (type/date):	<i>hexane 7/24/07</i>
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Additional Notes

Close Dilution Valve by 1/2 turn after taking readings

PACIFIC GE
SVE System Monitoring Log

SITE INFORMATION

Client/Site: Pilot Chemical Company
Address: 11756 Burke Street, Santa Fe Springs
Project No: 0105.0090.001.001
Unit: 250 Scfm Carbon
Permit No.: F79822
Technician: Initials: ETZ / ~~BM~~
Arrival Status: ☒ ON / ☐ OFF Alarms: Date: 7/25/07

CARBON FILTER INFORMATION

PID Reading: Primary Canister Inlet (ppm): 866.8 / 1008 Secondary Canister Inlet (ppm): 1.5 / 1.4
Primary Canister Outlet (ppm): 1.5 / 1.4 Secondary Canister Outlet (ppm): 1.2 / 4.3
Dilution Valve: Manual (% open):
Operating Hours: Total Hours: 10080.9 Cumulative Hours:
Knockout Pot: Total Gallons: Cumulative Gallons: Drained: Y / ☒ N
Extraction System: Influent Flow Rate (cfm): Lubricated: Y / ☒ N
Extraction System: Influent Vacuum: 17.0" 18.0 Temp @ carbon Influent 129
Extraction System: Vacuum @ knockoff pot 8.7 Temp @ heat exchanger influent 145
Extraction System: Pressure @ outlet of heat exchanger na Pressure @ inlet to heat exchanger 0

PROCESS DATA

WELL NO.	Well % Open	Flow Rate (cfm)	Vacuum at Well Head	PID Reading (ppm)	Comments
EW3					Temperature: 97.5° F (10:30 AM)
EW4					
VS1					
VS2	100	12	2.5"	n/a	→ extinguished flame in FID
VD1					
VD2					
VD3					
VD4					
VD5					
VD6					
VD7					
Monitoring Device					Calibration (type/date):

Additional Notes

Close VS1, Collect bagged sample from P. Inlet, P. Outlet ~~and~~, S. Outlet, + VS2.
Replaced hose on pump before taking readings / sampling.

PACIFIC GE
SVE System Monitoring Log

SITE INFORMATION

Client/Site:	Pilot Chemical Company		Unit:	250 Scfm Carbon
Address:	11756 Burke Street, Santa Fe Springs		Permit No.:	F79822
Project No:	0105.0090.001.001		Date:	2-26-07
Technician:	Initials:			
Arrival Status:	ON <input checked="" type="checkbox"/> OFF <input type="checkbox"/>	Alarms:		

CARBON FILTER INFORMATION

PID Reading:	Primary Canister Inlet (ppm):	1070	Secondary Canister Inlet (ppm):	
	Primary Canister Outlet (ppm):	24.0	Secondary Canister Outlet (ppm):	10.4
Dilution Valve:	Manual (% open):			
Operating Hours:	Total Hours:		Cummulative Hours:	
Knockout Pot:	Total Gallons:		Cummulative Gallons:	
Extraction System:	Influent Flow Rate (cfm):		Drained:	Y / N
Extraction System:	Influent Vacuum:		Lubricated:	Y / N
Extraction System:	Vacuum @ knockoff pot		Temp @ carbon Influent	
Extraction System:	Pressure @ outlet of heat exchanger		Temp @ heat exchanger influent	
			Pressure @ inlet to heat exchanger	

PROCESS DATA

WELL NO.	Well % Open	Flow Rate (cfm)	Vacuum at Well Head	PID Reading (ppm)	Comments
EW3					2:00pm SHOT DOWN.
EW4					
VS1					
VS2					
VD1					
VD2					
VD3					
VD4					
VD5					
VD6					
VD7					
Monitoring Device:					Calibration (type/date):

Additional Notes

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PACIFIC GE
SVE System Monitoring Log

SITE INFORMATION

Client/Site:	Pilot Chemical Company		Unit:	250 Scfm Carbon
Address:	11756 Burke Street, Santa Fe Springs		Permit No.:	F79822
Project No:	0105.0090.001.001		Date:	8/21/07
Technician:	Initials:	PTZ		
Arrival Status:	ON	OFF	Alarms:	

CARBON FILTER INFORMATION

PID Reading:	Primary Canister Inlet (ppm): 10.33	Secondary Canister Inlet (ppm): 7.6
	Primary Canister Outlet (ppm): 7.6	Secondary Canister Outlet (ppm): 5.5
Dilution Valve:	Manual (% open):	
Operating Hours:	Total Hours:	Cummulative Hours:
Knockout Pot:	Total Gallons:	Cummulative Gallons:
		Drained: Y / N
Extraction System:	Influent Flow Rate (cfm):	Lubricated: Y / N
Extraction System:	Influent Vacuum: 18.5	Temp @ carbon Influent
Extraction System:	Vacuum @ knockoff pot	Temp @ heat exchanger influent
Extraction System:	Pressure @ outlet of heat exchanger	Pressure @ inlet to heat exchanger

PROCESS DATA

WELL NO.	Well % Open	Flow Rate (cfm)	Vacuum at Well Head	PID Reading (ppm)	Comments
EW3					System was turned back on again @ 8:30 A.M.
EW4					
VS1					Temp. 100°F (2:30 P.M.)
VS2					
VD1					
VD2					
VD3					
VD4					
VD5					
VD6					
VD7					

Monitoring Device:	Calibration (type/date):
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Additional Notes

PACIFIC GE
SVE System Monitoring Log

SITE INFORMATION

Client/Site:	Pilot Chemical Company		Unit:	250 Scfm Carbon
Address:	11756 Burke Street, Santa Fe Springs		Permit No.:	F79822
Project No:	0105.0090.001.001		Date:	8/3/07
Technician:	Initials: <i>PTZ</i>			
Arrival Status:	<input checked="" type="checkbox"/> ON <input type="checkbox"/> OFF	Alarms:		

CARBON FILTER INFORMATION

PID Reading:	Primary Canister Inlet (ppm):	1842	Secondary Canister Inlet (ppm):	6.6
	Primary Canister Outlet (ppm):	6.0	Secondary Canister Outlet (ppm):	5.4
Dilution Valve:	Manual (% open):			
Operating Hours:	Total Hours:	Cummulative Hours:		
Knockout Pot:	Total Gallons:	Cummulative Gallons:	Drained:	Y / N
Extraction System:	Influent Flow Rate (cfm):	Lubricated: Y / N		
Extraction System:	Influent Vacuum:	15.5"	Temp @ carbon Influent	
Extraction System:	Vacuum @ knockoff pot	Temp @ heat exchanger influent		
Extraction System:	Pressure @ outlet of heat exchanger	Pressure @ inlet to heat exchanger		

PROCESS DATA

WELL NO	Well % Open	Flow Rate (cfm)	Vacuum at Well Head	PID Reading (ppm)	Comments
EW3					1st Reading: 9:30 Am Temp: 90°F Air valve was opened 2 1/2 turns to make adjustments for upcoming weekend. 2nd Reading: 3:00 p.m. Pressure: 18.9" Temp: 105°F 1' inlet: 372.4 ppm 1' outlet / 2' inlet: 4.3 ppm 2' outlet: 3.9 ppm.
EW4					
VS1					
VS2					
VD1					
VD2					
VD3					
VD4					
VD5					
VD6					
VD7					
Monitoring Device:					Calibration (type/date):

Additional Notes

PACIFIC GE
SVE System Monitoring Log

SITE INFORMATION

Client/Site:	Pilot Chemical Company		Unit:	250 Scfm Carbon
Address:	11756 Burke Street, Santa Fe Springs		Permit No.:	F79822
Project No:	0105.0090.001.001		Date:	8/6/07
Technician:	Initials:	FTE		
Arrival Status:	ONLY OFF	Alarms:		

CARBON FILTER INFORMATION

PID Reading:	Primary Canister Inlet (ppm):	317.2	Secondary Canister Inlet (ppm):	2.3
	Primary Canister Outlet (ppm):	2.3	Secondary Canister Outlet (ppm):	2.1
Dilution Valve:	Manual (% open):			
Operating Hours:	Total Hours:		Cummulative Hours:	
Knockout Pot:	Total Gallons:		Cummulative Gallons:	
Extraction System:	Influent Flow Rate (cfm):		Drained:	Y / N
Extraction System:	Influent Vacuum:	13.5"	Lubricated:	Y / N
Extraction System:	Vacuum @ knockoff pot		Temp @ carbon Influent	
Extraction System:	Pressure @ outlet of heat exchanger		Temp @ heat exchanger influent	
			Pressure @ inlet to heat exchanger	

PROCESS DATA

WELL NO.	Well % Open	Flow Rate (cfm)	Vacuum at Well Head	PID Reading (ppm)	Comments
EW3					1st Reading: 8:30 AM Temp: 82°F
EW4					Air valve was closed 2 1/2 turns.
VS1					2nd Reading: 2:15 p.m. Temp 100°F
VS2					Pressure: 17.0"
VD1					1' inlet: 11.32
VD2					2' outlet: 3.2
VD3					1' outlet / 2' inlet: 3.8
VD4					
VD5					
VD6					
VD7					

Monitoring Device:

Calibration (type/date):

Additional Notes

PACIFIC GE
SVE System Monitoring Log

SITE INFORMATION

Client/Site:	Pilot Chemical Company		Unit:	250 Scfm Carbon
Address:	11756 Burke Street, Santa Fe Springs		Permit No.:	F79822
Project No:	0105.0090.001.001		Date:	8/7/07
Technician:	Initials: FTZ			
Arrival Status:	ON / OFF	Alarms:		

CARBON FILTER INFORMATION

PID Reading	Primary Canister Inlet (ppm):	873.1	Secondary Canister Inlet (ppm):	1.3
	Primary Canister Outlet (ppm):	1.3	Secondary Canister Outlet (ppm):	1.1
Dilution Valve	Manual (% open):			
Operating Hours	Total Hours:		Cummulative Hours:	
Knockout Pot	Total Gallons:	Cummulative Gallons:	Drained:	Y / N
Extraction System	Influent Flow Rate (cfm):		Lubricated:	Y / N
Extraction System	Influent Vacuum:	13.5"	Temp @ carbon Influent	
Extraction System	Vacuum @ knockoff pot		Temp @ heat exchanger influent	
Extraction System	Pressure @ outlet of heat exchanger		Pressure @ inlet to heat exchanger	

PROCESS DATA

WELL NO	Well % Open	Flow Rate (cfm)	Vacuum at Well Head	PID Reading (ppm)	Comments
EW3					1st Reading: 8:00 AM. Temp: 80°F 2nd Reading: 2:30 P.M. Temp: 100°F Pressure: 16.75" 1' inlet: 1136 PPM 1' outlet / 2' inlet: 3.5 PPM 2' outlet: 2.8 PPM
EW4					
VS1					
VS2					
VD1					
VD2					
VD3					
VD4					
VD5					
VD6					
VD7					

Monitoring Device:	Calibration (type/date):
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Additional Notes

SITE INFORMATION

Client/Site: Pilot Chemical Company
Address: 11756 Burke Street, Santa Fe Springs
Project No: 0105.0090.001.001
Unit: 250 Scfm Carbon
Permit No.: F79822
Technician: Initials: ETZ Date: 8/8/07
Arrival Status: ON / OFF Alarms:

CARBON FILTER INFORMATION

PID Reading: Primary Canister Inlet (ppm): 1050 / 898 Secondary Canister Inlet (ppm): 1.0 / 2.4
Primary Canister Outlet (ppm): 1.0 / 2.4 Secondary Canister Outlet (ppm): 0.4 / 16.1
Dilution Valve: Manual (% open):
Operating Hours: Total Hours: 10251.6 Cumulative Hours:
Knockout Pot: Total Gallons: Cumulative Gallons: Drained: Y / N
Extraction System: Influent Flow Rate (cfm): Lubricated: Y / N
Extraction System: Influent Vacuum: 14.5" → 18" Temp @ carbon Influent 118
Extraction System: Vacuum @ knockoff pot 6.2 Temp @ heat exchanger influent 33
Extraction System: Pressure @ outlet of heat exchanger N/A Pressure @ inlet to heat exchanger 0

PROCESS DATA

WELL NO	Well % Open	Flow Rate (cfm)	Vacuum at Well Head	PID Reading (ppm)	Comments
EW3					1st Reading: 8:00 AM Temp: 82°F
EW4					
VS1					
VS2	100	9.05	2.2"		
VD1					
VD2					
VD3					
VD4					
VD5					
VD6					
VD7					

Monitoring Device: FTD Calibration (type/date): None

Additional Notes

Collect bagged sample from Secondary Outlet, Primary Outlet, and Primary Inlet. Shut system down. Sergio (Beaco Environmental) on site to replace oil filter #3. Start system, take lunch, sample after letting system run ~ 1 hour.

PACIFIC GE
SVE System Monitoring Log

SITE INFORMATION

Client/Site:	Pilot Chemical Company		Unit:	250 Scfm Carbon
Address:	11756 Burke Street, Santa Fe Springs		Permit No.:	F79822
Project No:	0105.0090.001.001		Date:	8/9/07
Technician:	Initials: FTE			
Arrival Status:	ON / OFF	Alarms:		

CARBON FILTER INFORMATION

PID Reading	Primary Canister Inlet (ppm): 1045	Secondary Canister Inlet (ppm): 1.8
	Primary Canister Outlet (ppm): 1.8	Secondary Canister Outlet (ppm): 1.2
Dilution Valve:	Manual (% open):	
Operating Hours:	Total Hours:	Cummulative Hours:
Knockout Pot:	Total Gallons:	Cummulative Gallons:
Extraction System:	Influent Flow Rate (cfm):	Drained: Y / N
Extraction System:	Influent Vacuum: 16.5"	Lubricated: Y / N
Extraction System:	Vacuum @ knockoff pot	Temp @ carbon Influent
Extraction System:	Pressure @ outlet of heat exchanger	Temp @ heat exchanger influent
		Pressure @ inlet to heat exchanger

PROCESS DATA

WELL NO.	Well % Open	Flow Rate (cfm)	Vacuum at Well Head	PID Reading (ppm)	Comments
EW3					1st Reading: 9:04 AM Temp: 87°F
EW4					
VS1					
VS2					
VD1					
VD2					
VD3					
VD4					
VD5					
VD6					
VD7					

Monitoring Device:	Calibration (type/date):
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Additional Notes

System shut down due to liquid ring pump failure. Sent pump in for replacement & system non operational. CAS 8/9/07

PACIFIC GE
SVE System Monitoring Log

SITE INFORMATION

Client/Site:	Pilot Chemical Company		Unit:	250 Scfm Carbon
Address:	11756 Burke Street, Santa Fe Springs		Permit No.:	F79822
Project No:	0105.0090.001.001		Date:	12/6/07
Technician:	Initials: <i>TTZ</i>			
Arrival Status:	<input checked="" type="checkbox"/> ON / <input type="checkbox"/> OFF	Alarms:		

CARBON FILTER INFORMATION

PID Reading:	Primary Canister Inlet (ppm): <i>751.0 ppm</i>	Secondary Canister Inlet (ppm): <i>0.8 ppm</i>	
	Primary Canister Outlet (ppm): <i>0.8 ppm</i>	Secondary Canister Outlet (ppm): <i>0.3 ppm</i>	
Dilution Valve:	Manual (% open):		
Operating Hours:	Total Hours:	Cumulative Hours:	
Knockout Pot:	Total Gallons:	Cumulative Gallons:	Drained: Y / N
Extraction System:	Influent Flow Rate (cfm):	Lubricated: Y / N	
Extraction System:	Influent Vacuum: <i>15" Hg</i>	Temp @ carbon Influent	
Extraction System:	Vacuum @ knockoff pot	Temp @ heat exchanger influent	
Extraction System:	Pressure @ outlet of heat exchanger	Pressure @ inlet to heat exchanger	

PROCESS DATA

WELL NO.	Well % Open	Flow Rate (cfm)	Vacuum at Well Head	PID Reading (ppm)	Comments
<i>EW3</i>					<i>1st Reading: 8:00 AM; valve was open 1/2 turn to bring up the readings.</i>
<i>EW4</i>					
<i>VS1</i>					<i>2nd Reading: 2:00 P.M.</i>
<i>VS2</i>					<i>Temp. 77.5° F Pressure: 15.5" Hg</i>
<i>VD1</i>					<i>1' outlet: 671.0 ppm</i>
<i>VD2</i>					<i>1' outlet/2' inlet: 1.6 ppm</i>
<i>VD3</i>					<i>2' outlet: 0.0 ppm</i>
<i>VD4</i>					
<i>VD5</i>					
<i>VD6</i>					
<i>VD7</i>					
Monitoring Device:					Calibration (type/date):

Additional Notes

SITE INFORMATION

Client/Site: Pilot Chemical Company
 Address: 11756 Burke Street, Santa Fe Springs
 Project No: 0105.0090.001.001

Unit: 250 Scfm Carbon
 Permit No.: F79822

Technician: Initials: JTZ Date: 12/7/57
 Arrival Status: ☒ ON / ☐ OFF Alarms:

CARBON FILTER INFORMATION

PID Reading	Primary Canister Inlet (ppm): 114.6 ppm	Secondary Canister Inlet (ppm): 0.0
	Primary Canister Outlet (ppm): 0.0	Secondary Canister Outlet (ppm): 0.0
Dilution Valve:	Manual (% open):	
Operating Hours	Total Hours:	Cummulative Hours:
Knockout Pot	Total Gallons: Cummulative Gallons:	Drained: Y / N
Extraction System	Influent Flow Rate (cfm):	Lubricated: Y / N
Extraction System	Influent Vacuum: 15" Hg	Temp @ carbon Influent
Extraction System	Vacuum @ knockout pot	Temp @ heat exchanger influent
Extraction System	Pressure @ outlet of heat exchanger	Pressure @ inlet to heat exchanger

PROCESS DATA

WELL NO.	Well % Open	Flow Rate (cfm)	Vacuum at Well Head	PID Reading (ppm)	Comments:
EW3					1st Reading: 8:00 AM Temp: 62°F
EW4					2nd Reading: 1:45 P.M. Temp: 70°F
VS1					Pressure: 15.2" Hg
VS2					1 inlet: 78.6 ppm
VD1					1 outlet / 2' inlet: 0.0 ppm
VD2					2' outlet: 0.0 ppm
VD3					
VD4					oil was added to the pump.
VD5					
VD6					
VD7					
Monitoring Device					Calibration (type/date):

Additional Notes

PACIFIC GE
SVE System Monitoring Log

SITE INFORMATION

Client/Site:	Pilot Chemical Company		
Address:	11756 Burke Street, Santa Fe Springs		Unit: 250 Scfm Carbon
Project No:	0105.0090.001.001		Permit No.: F79822
Technician:	Initials: JZ	Date: 12/16/07	
Arrival Status:	ON / OFF	Alarms:	

CARBON FILTER INFORMATION

PID Reading	Primary Canister Inlet (ppm):	51.5	Secondary Canister Inlet (ppm):	0.0
	Primary Canister Outlet (ppm):	0.6	Secondary Canister Outlet (ppm):	0.0
Dilution Valve	Manual (% open):			
Operating Hours:	Total Hours:		Cummulative Hours:	
Knockout Pot	Total Gallons:	Cummulative Gallons:	Drained:	Y / N
Extraction System	Influent Flow Rate (cfm):		Lubricated:	Y / N
Extraction System	Influent Vacuum:	15.0" Hg	Temp @ carbon Influent	
Extraction System	Vacuum @ knockoff pot		Temp @ heat exchanger influent	
Extraction System	Pressure @ outlet of heat exchanger		Pressure @ inlet to heat exchanger	

PROCESS DATA

WELL NO.	Well % Open	Flow Rate (cfm)	Vacuum at Well Head	PID Reading (ppm)	Comments
EW3					1st Reading: 8:30 A.M. Temp: 57.5°F
EW4					
VS1					Air valve was closed 2 turns to bring up the extraction.
VS2					
VD1					
VD2					
VD3					
VD4					
VD5					
VD6					
VD7					
Monitoring Device:				Calibration (type/date):	

Additional Notes

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PACIFIC GE
SVE System Monitoring Log

SITE INFORMATION

Client/Site:	Pilot Chemical Company		Unit:	250 Scfm Carbon
Address:	11756 Burke Street, Santa Fe Springs		Permit No.:	F79822
Project No:	0105.0090.001.001		Date:	12/11/07
Technician:	Initials:			
Arrival Status:	ON / OFF	Alarms:		

CARBON FILTER INFORMATION

PID Reading	Primary Canister Inlet (ppm):	740	Secondary Canister Inlet (ppm):	3.5
	Primary Canister Outlet (ppm):	3.5	Secondary Canister Outlet (ppm):	0.7
Dilution Valve	Manual (% open):			
Operating Hours	Total Hours:	10500.5	Cummulative Hours:	
Knockout Pot	Total Gallons:	Cummulative Gallons:	Drained:	Y / <input checked="" type="radio"/> N
Extraction System	Influent Flow Rate (cfm):	250	Lubricated:	Y / <input checked="" type="radio"/> N
Extraction System	Influent Vacuum:	16.75	Temp @ carbon Influent	100
Extraction System	Vacuum @ knockoff pot	2.8	Temp @ heat exchanger influent	124
Extraction System	Pressure @ outlet of heat exchanger	N/A	Pressure @ inlet to heat exchanger	0

PROCESS DATA

WELL NO	Well % Open	Flow Rate (cfm)	Vacuum at Well Head	PID Reading (ppm)	Comments
EW3					
EW4					
VS1					
VS2	100	9.48	2.1	N/A	→ Flame went out, not enough oxygen
VD1					
VD2					
VD3					
VD4					
VD5					
VD6					
VD7					

Monitoring Device:	FTD	Calibration (type/date):	12/11/07
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Additional Notes